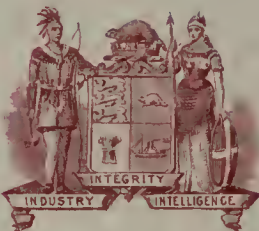


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THE CANADIAN HORTICULTURIST

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The Canadian Horticulturist

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No. 1

Fruits Originated in Canada*

W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa

UP to the present time no extensive list of fruits which have originated in Canada has been published, but it is now thought desirable, owing to the rapidly developing importance of the Canadian fruit industry, that such a list should be at least begun. It is with much pleasure, therefore, that I present before the American Pomological Society a preliminary paper, believing that the best place to introduce such a subject is before this society, which has done so much to systematize nomenclature and to bring new fruits into notice.

Fruits have been cultivated in Canada almost or quite as long as they have been in the United States. Early in the history of the country, apple trees were successfully planted by the French in Nova Scotia, and by 1663, according to history, trees were growing on the banks of the Dauphin, the L'Equille, and L'Orignal rivers, and in the vicinity of Minas Basin and the rivers Canard and Gaspereaux. According to Pierre Boucher, who wrote in 1663, trees were growing in the vicinity of Montreal, for he states: "Not many trees have been introduced from France, except some apple trees that bear very fine fruit in large quantity, but there are not many of these trees yet." In Ontario and the other provinces of the Dominion, the cultivation of fruits was begun later. For at least 250 years, then, fruits have been cultivated in Canada, although little progress was made while the country was thinly settled and the permanence of the settlements uncertain. There is no doubt, however, but that from the very earliest of the introductions have sprung some varieties distinctly Canadian. While many of the fruit trees introduced from France and England to Nova Scotia were suited to the conditions there, and have been the parents of many seedlings showing evidence of the blood of old French and English sorts, it was

quite otherwise in the case of the province of Quebec, where the cold winters must have destroyed most of the trees, but in the Fameuse apple, which Canadians claim to be the best apple of its season, there is an instance of a variety, or a Canadian seedling, which we prefer to think, that has survived, and in the seedlings of Fameuse there is a group of varieties bearing a close re-

part of man. There is no doubt but that considerable seed was planted by the early settlers, but in those stormy times the young trees must have received little care. Later, there was less incentive to originate trees from seed, as good varieties could be procured from the New England states, hence most of the Canadian fruits of which we now have a record have originated by chance from seed fallen by the wayside.

It is not my purpose to present at this time a long list of varieties which, for the most part, would be uninteresting, and which can be studied if desired when this paper appears in the Annual Report, but to say something more about those Canadian varieties which have now more than a local reputation.

APPLES ORIGINATED IN CANADA

The apple, being the most important Canadian fruit, has naturally given more desirable sorts than any other kind of fruit. Perhaps the most noteworthy of all Canadian apples is the Fameuse. While some writers have tried to show that this apple is of French origin, and was merely introduced from France by the early Canadian settlers, there is no good evidence to support any such contention, and while there is no positive proof that it is Canadian, the evidence is very strong that it was originated somewhere along the St. Lawrence river near Montreal or Quebec early in the seventeenth century. The Fameuse and some of its seedlings stand out prominently among the high-class dessert apples of their season, and in addition to their beauty and quality they are very profitable, and if an unprejudiced vote were taken by all fruit growers who are well acquainted with apples, on what were the two best dessert varieties of their season, which is November to January in Canada, the vote would be almost unanimous in favor of the Fameuse and the McIntosh, the latter a Canadian seedling of the former.

Assists Societies

The Woodstock Horticultural Society has been taking THE CANADIAN HORTICULTURIST for 12 or 13 years. The society was organized about 1895, at which time THE CANADIAN HORTICULTURIST was given as a special premium. Ever since that date, the members of the horticultural society have looked forward to receiving their copy of THE CANADIAN HORTICULTURIST. We know that it has proved to our advantage to give the publication as a premium to our members, and I would advise all other societies to do the same. Not only will it assist in increasing the membership, but THE CANADIAN HORTICULTURIST is of such a nature as to greatly assist the horticultural interests of the society.—M. Dawes, Secretary-Treasurer, Woodstock Horticultural Society, Woodstock, Ont.

semblance to the parent which are proving of great value. In Ontario, where the cultivation of fruits was begun somewhat later than in the provinces of Nova Scotia and Quebec, the parentage of most of the seedlings may be traced to American varieties which were already quite numerous when orchards were first planted in Ontario.

Up to within a few years ago most of the fruits of merit which had originated in Canada were chance seedlings, or seedlings which had originated with little or no effort on the

*A portion of a paper read before the American Pomological Society, at the Jamestown Exhibition.

These two apples are always in great demand in Canada, the United States and Great Britain, and high prices are usually paid for No. 1 fruit. The following are descriptions of these fruits:

FAMEUSE OR SNOW

Origin unknown. Supposed to have been a seedling originated near Montreal or Quebec early in the seventeenth century. Fruit of medium size, roundish to oblate; skin, pale yellow, either almost or completely covered with deep red or splashed and washed with red when fruit is not well colored; dots not prominent; cavity of medium depth and width; stem, short to medium in length, slender or moderately stout; basin, small, somewhat narrow, almost smooth; flesh, very white, very tender, juicy, subacid with a fine flavor and a delicate perfume; core, small; quality, very good to best; season, early winter; tree, strong grower, spreading, and a heavy bearer. This is one of the best dessert apples, and one of the most profitable where it succeeds.

MCINTOSH

Originated with John McIntosh, Dundela, Ont., early in the nineteenth century. Probably a seedling of Fameuse. Fruit above medium to large, roundish, slightly angular, highly perfumed; skin, pale yellow, almost entirely covered with crimson, dark on sunny side and brighter on rest of fruit; dots, few, small, yellow, distinct, but not prominent; cavity of medium depth and width; stem, short, stout; basin, narrow, almost smooth, medium depth; calyx, partly open; flesh, white, crisp, very tender, melting, juicy, subacid, sprightly with a pleasant aromatic flavor; core of medium size; quality, very good to best; season, November to January; tree, hardy, and a strong, moderately upright grower and an annual and medium bearer. For its season the McIntosh apple is one of the best varieties grown. In some places, it is very subject to spot, but this has not been the experience at the Central Experimental Farm, where the trees are sprayed. It has also not been found to be a shy bearer as reported by some.

FAMEUSE VS. MCINTOSH

In the provinces of Ontario and Quebec are many orchards of Fameuse trees, and in the United States, in which this variety succeeds, it is also popular and has been largely planted. It is only during the last forty years that the McIntosh apple has been propagated, the son of the originator first beginning this work, and other nurserymen eventually doing the same. The oldest orchards are in the vicinity of the original tree, which still remains alive, although in bad condition. Nat-

urally, there was not much fruit available until comparatively recently, and it is only during the past ten or fifteen years that the fruit has become widely known. So great is the popularity of this variety at present that the nurserymen cannot meet the demand for trees. The McIntosh is superior to the Fameuse in several respects. It is larger, more uniformly handsome, and by most people considered of better quality. It is perhaps not quite so productive as Fameuse, but in our experience is a more regular bearer. Like the Fameuse, it is subject to spot, but this can be prevented by thorough spraying.

SCARLET PIPPIN

Another Canadian apple of the Fameuse group is the Scarlet Pippin, which, though not quite as useful as the McIntosh, is a very profitable sort on account of its handsome appearance, productiveness and good quality. It is sometimes called "Leeds Beauty" and is described as follows: Originated at Lyn, Leeds County, Ontario, near Brockville. Mr. Harold Jones, Maitland, Ont., has had most to do in bringing this fine apple before the public. Fruit of medium size, oblate to roundish; skin, yellow, waxy, more or less washed or splashed with bright and dark crimson, and covered with a light bloom; cavity, deep and of medium width; stem, short, slender; basin, narrow, shallow, almost smooth; calyx, generally closed; flesh, white, firm, crisp, tender, melting, juicy, a mild subacid, with a pleasant but not high flavor; core, small; quality, very good; season, early winter. A very attractive apple, and said to sell better than Fameuse, which it does not, however, equal in quality. Tree a strong, upright grower, and a heavy bearer.

ST. LAWRENCE

Closely related to the Fameuse, if not of the same group, is the St. Lawrence, which also is scarcely surpassed by any apple of its season, which is between Duchess and Wealthy. It is grown in considerable quantities in the province of Quebec, and finds a ready sale among the best class of customers. It was originated in Montreal early in the nineteenth century. The tree is a strong, spreading grower, moderately productive; fruit, above medium to large, oblate conic; cavity, medium depth, open; stem, short, stout; basin, medium depth and width, wrinkled; calyx, closed; color, pale greenish-yellow, splashed and streaked with dark purplish red; dots, obscure; skin, thin, tender; flesh, white tinged with red, tender, juicy, subacid, pleasant flavor; core, medium; very good quality; season, mid-September to October.

(To be continued)

Amateur Grape Growing

Fruits of all kinds should be grown in amateur gardens more extensively than they are at present. Most fruits are not difficult to grow. They are interesting subjects to handle, and will furnish much pleasure and reward to the grower. Among the kinds of fruits that can be trained to occupy small space if necessary, is the grape. An enthusiastic horticulturist in Hespeler, Ont., Mr. G. W. Tebbs, secretary of the Hespeler Horticultural Society, has experienced considerable success with grapes, as is evidenced by the illustration on page 3. In the following letter Mr. Tebbs outlines his methods of care and treatment:

"I had no experience with grapes until two years ago, when we took over this property and found vines that were simply a tangled mass of branches—more like a hedgerow than anything else, and the grapes were not fit for chickens to eat. In the fall of the first year, I cut them mercilessly back to the main trunk of the vine. The trellises were to pieces, and I rebuilt them. The grass was growing around the roots, and during the season is still doing so to a large extent. It is the tiresome twitch grass that is so difficult to remove. I did my best, however, in getting as much air to the roots as possible. I cleaned the bark of all sorts of vermin. The first year we had a dandy little crop, not large in quantity, but good in size, and well ripened.

"Last fall, I repeated the same treatment, but began training the vines to the trellises, and did not cut back quite so vigorously, leaving about two buds on the branch. When the grapes begin to turn color I strip off a few leaves near the bunches to let in the sun, and the fruit always ripens before we get a frost. To help them out, I cut the tips off the branches and throw all the support into the fruit.

"In sending samples to the Old Country, I pack in boxes when nearly ripe, making them firmly and what I call 'cosy,' with paper shavings obtained from confectionery goods. The boxes are well papered inside, as it acts as a non-conductor of heat. My friends on the other side of the water say that the grapes arrive in A1 condition, with the bloom as perfect as on the day they were gathered. If this can be improved upon I should be glad to have a few pointers from your readers. We had bunches weighing over two pounds. If more were grown in this section as they are grown in the Niagara district, they would do just as well. I have had no early frost trouble here."

Can San Jose Scale Spread From Infested Fruit?

IN the November issue of THE CANADIAN HORTICULTURIST it was pointed out that there is no danger of San Jose scale spreading to orchards from infested fruit. Many prominent entomologists expressed their opinions. As the question is one of great importance to fruit growers, a number of others were asked to contribute their views.



A Seedling Gooseberry

Originated and grown by P. Barrett, Truro, N.S.
See page 4.

The State Entomologist for Connecticut, Dr. W. E. Britton, wrote: "It seems to me possible for the scale to be spread in this way, and yet I cannot name a single instance on record where it has actually happened. As a matter of fact, in canneries the waste is utilized in such a way that there would be no danger. In some cases, as you know, the cores and parings are used for making jelly, and are either cooked or subjected to great pressure, perhaps both, so that no insects would come through the process alive. If a person should throw an infested pear or apple into the branches of a fruit tree, crushing the fruit so that portions of it were left upon the branches, newly hatched scales would doubtless become established upon the tree; but this is about the only way in which it seems possible for infested fruit to be dangerous. This is probably not liable to happen."

Prof. H. T. Fernald, Associate Entomologist, Agricultural Experiment Station, Amherst, Mass.: "I do not know of a single case where trees have ever become infested with the San Jose scale from infested fruit, though this has been shipped to all parts of this country and abroad for a number of years. It is evident that the scales themselves on the fruit cannot change

their location, and the only danger would be that crawling young coming from these scales might be brought in contact with plants upon which they could live; but these young can travel only a very short distance, and if we remember that purchased fruit is rarely eaten where there are fruit trees, and that parings and refuse from infested fruit would stand very little chance of being deposited close to such trees, we can see at once that the chance of infesting such trees is exceedingly slight, and indeed may be entirely ignored in practice.

"The only way in which I should feel at all certain of succeeding in infesting fruit trees by means of infested fruit would be by securing well-infested samples of the fruit and carefully fastening these on small branches of living trees, and this too during the spring, summer or early fall months rather than during the season when infested fruit is most likely to be available for such a purpose. From these standpoints, my answer to your question would be that there is very little danger of the scale ever being disseminated by means of infested fruit."

Prof. C. D. Jarvis, Horticulturist, Agricultural Experiment Station, Storrs, Conn.: "There is little danger in disseminating San Jose scale by the importation of infested fruit. My belief is based upon a knowledge of the habits of the insect. The young insect, after moving around for a few hours, or at most for a day or two, settles down, secretes its waxy scale and never leaves that position. It is

possible that when harvested, the fruit may carry some of the young moving scales, but by the time it reaches its destination they will have become fixed. It is quite probable that the scale continues to breed while the fruit is in storage or during transportation. Assuming this to be true, the only danger lies in the disposition of the

parings. If they should happen to be deposited near any of the host plants of the insect during the breeding season, there is a possibility of its getting a foothold. In view of the lateness of the season, and in view of the very delicate nature of the young insect, its survival is extremely doubtful."

Prof. Leonard Haseman, Assistant Entomologist, College of Agriculture, Columbia, Mo.: "While it can readily be seen that under perfectly favorable conditions some scales could be shipped long distances and transferred to fruit trees where the fruit is used, it is not at all likely that any would spread in this way. It would be necessary for the fruit to contain full-grown females, and where the fruit is used the peelings would have to be thrown where the young could readily crawl to the trees or other shrubs on which they could feed, as the period of activity of the young is not over forty-eight hours. In general the peelings and cores of apples and pears are thrown into refuse barrels and used for food for hogs and the like. Considering everything, there need be no fear concerning the spread of this pest upon fruit. In every case of which we have a record in this state, the spread has been entirely through infested nursery stock."

The state entomologist for Minnesota, Mr. F. L. Washburn, expresses his opinion as follows: "I regard the presence of San Jose scale as a greater or less menace under almost any condition. While fruit peelings infested with San Jose scale, thrown out on the



Do You Like Grapes?

Photograph taken in his garden at Hespeler, Ont., in September, 1907, by Mr. G. W. Tebb, Director, Hespeler Horticultural Society. See page 2.

ground, might not in 99 cases out of a 100 do any harm, it is possible that some of the female scales, when they became mature, might hibernate successfully in close proximity to some tree or shrub, and the young produced in the spring would be apt to crawl upon the above mentioned tree or shrub and cause trouble. I believe, therefore, in legislation against infested fruit."

The state entomologist for Illinois, Mr. S. A. Forbes, wrote: "The question whether the San Jose scale may be conveyed by means of ripe infested fruits is not a simple one, owing to the fact that one can never say just where such fruits may be kept or placed, or what may be done with the parings. It is undoubtedly the case that the scale will live and multiply on ripe apples after they have been picked, the young fixing themselves on the fruit and going through at least the early stages of their growth. This has happened in my office, with apples kept on the office desk. There is, consequently, a theoretical possibility that young scales may escape from such fruit to trees adjacent, but the conditions under which this could happen must be extremely rare, if indeed they ever occur."

Another Seedless Apple

At the Ontario Horticultural Exhibition held in Toronto last November, Mr. W. M. Robson, of Lindsay, Ont., exhibited specimens of a seedless apple. They were picked from trees that have been growing near Lindsay for fifteen years or more. It is claimed that the trees came originally from a nursery, but "all trace of their origin is lost. Mr. Robson exhibited the specimens at the request of the owner, Mr. Jas. Fleury, of Lindsay. In the words of Mr. Robson, "Mr. Fleury is desirous of having the variety tested by the experiment stations of the province and by the growers, so that its merits may be determined. It is not in the possession of any combine with hard and fast rules respecting its distribution. Its quality, size and appearance are good, and apparently it is a winter variety. It is in a state of evolution. Having dispensed with the seeds, Dame Nature may be contemplating the disposal of the cells as useless appendages. If these can be done away with, the variety has a future."

A number of fruit growers and a representative of THE CANADIAN HORTICULTURIST examined the specimens shown. Like all seedless apple productions, this variety has its defects, some of which may be seen in the illustrations on page 4 and 5. While perfectly seedless, this apple has a pronounced open core. The elimination

of seeds is of little value while the core remains, as it is the latter and not the former that causes waste and annoyance to the canner and the house-wife. This apple is of good size, but its shape is uninviting. In color, it is only ordinary. The specimens examined by THE CANADIAN HORTICULTURIST were slightly past their prime, indicating that the variety is late fall in season. It is only right to say in this connection that the shaded portions of the cut surfaces shown in two of the illustrations are due largely to exposure to the air while the camera was being focused and arranged for taking the photographs. It is the policy of THE CANADIAN HORTICULTURIST to further the interests of horticulture in all its branches, to aid in the introduction



Another Seedless Apple

of new varieties of fruits that are worth while, and so forth, and to pronounce unfavorably upon varieties, methods and schemes that are of little or no use. The variety aforementioned should be tested by our experiment stations, and tested thoroughly before receiving further notice from fruit growers.

A Seedling Gooseberry

The engraving on page 3 illustrates a seedling gooseberry bush grown by Mr. Peter Barrett, Superintendent of the Truro Poor Farm, Truro, N.S. From press notices in Nova Scotia, it is evident that Mr. Barrett has a hobby along this line of horticulture. He has lived in Truro over 40 years, coming there from England. He is an enthusiastic horticulturist.

From the bush illustrated, there were picked last season eleven and one-half pounds of ripe fruit. Mr. Barrett is propagating this new variety, and considers it very promising. He has originated and is growing several other seedlings, not only of gooseberries, but also of red and black currants. These are expected to bear fruit next season. Their progress will be watched with interest.

Shot Hole Fungus

V. R. Gardner, Macdonald College

This is a disease of the stone fruits, affecting the foliage only. On the cherry, it is more commonly known as the cherry leaf spot. Reddish, more or less circular spots appear on the leaves. These spots often run together, forming large, irregular patches. They later turn brown, and finally the diseased tissues drop out, making the leaves appear as though they had been riddled with shot. This usually results in a premature falling of the leaves and a corresponding check in the growth and fruitfulness of the tree. If the trees are stripped of their leaves early in the season and wet weather follows, a new growth is often made. This does not have a chance to ripen perfectly before fall, the result being increased danger of winter-killing. Without doubt, a considerable amount of the winter-killing of cherry and plum trees is indirectly due to this fungus. In some localities, the disease is more destructive than in others. Season and soil also greatly influence its virulence.

TREATMENT FOR SHOT HOLE FUNGUS

Shot hole fungus is a difficult disease to control. As it is likely to appear any time during the season, and as new leaves are being formed on the plum throughout the summer, it is necessary to begin spraying early, and protect the new foliage by later applications. Bordeaux mixture applied before the buds open and once or twice after the fruit has set, and then the weak copper sulphate or copper carbonate of ammonia solution shortly before the fruit ripens, the same as is advised for the control of brown rot, is probably the best treatment that can be recommended. The treatment that will hold one of these diseases in check will also suffice for the other.

Some Market Prices

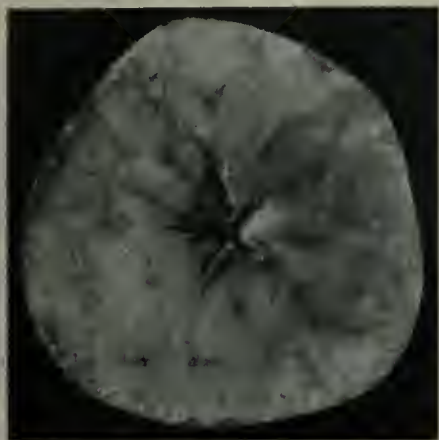
Kindly give the wholesale prices in Toronto markets for raspberries by the quart or pound, and asparagus by the bunch or pound, in their respective seasons. State the demand. Are there any canners in the district that handle berries? What prices do they pay?—J. M., Dunmore, Pa.

During the past season, raspberries averaged eleven cents a basket of about one to one and one-eighth pounds. The season was exceptional for high prices. During an ordinary season, the average price is about nine cents. Asparagus sold last season at \$1.50 to \$2 for an eleven-quart basket. These baskets contain from eighteen to twenty-four bunches, according to the size of the bunches. There are a number of canning factories in the province. Last season they paid nine cents a basket for raspberries and in ordinary seasons, eight cents. It is not probable that the production of either of these commodities will ever exceed the demand.

What Trees Should Be Planted?

Prof. G. Reynaud, La Trappe, Quebec

THE majority of farmers are reaping their reward from the advantages which they have been able to draw from their fruit orchards; with a large number of farmers this becomes their first



Cross Section of Seedless Apple

thought, and in this they are worthy of all our encouragement. Nothing could be better to make them love their new venture. One is astounded at the enor-

mous sums spent in the purchase of fruit trees compared with the results obtained in certain parishes. To explain this state of things we could give many reasons, of which one of the principal is ignorance of the varieties doing well in our climate. The farmers have often been the victims of misrepresentations. Fruits from elsewhere, good and beautiful though they may be, have been sold as thriving very well in that community.

It rests with the Pomological Society of the Province of Quebec, whose principal object is to work for the advancement of fruit growing, to aid these planters by the publication of the principal varieties of apples whose culture can be made successful in our province. Such a list was made last year and the Government has commenced its distribution through the country. With this list the grower should be able to give his order with a measure of certainty, doing away with costly experiences. Further, there is room to make a distinction in this list between the trees raised under home conditions and those coming from another province. I admit, certainly, that for a professional grower this dis-

tingtion is not of great importance, for he can, by careful cultivation, overcome the defects of imported stock. But with the mass of growers the trees, so to speak, look after themselves, only receiving a minimum of care in insufficiently worked land. The only trees capable of giving us satisfaction are those grown in the Province of Quebec; moreover, most pomologists recommend the procuring of trees from a nursery as close to the place of planting as possible.

Our society, without showing any partizanship, and in the interests of all, should publish a list of those who have nurseries in this province, and who sell only that which they grow. By this means it would put a stop to a fraudulent business which does not fear to be carried on even in the same vicinity where a celebrated nursery, the oldest in the country, has always given its clients entire satisfaction, at times to its own loss. I speak of the nursery of St. Roch des Aulnaies, founded by our honored president, Mr. A. Dupuis, and carried on at present by one of our directors, Mr. A. D. Verreault. It is a credit to the province.

Sweet Pea Culture a Fine Art*

Max Moineau, Toronto

THE sweet pea of to-day is the result of many years of patient experimentation. Its beauty and fragrance have made it a garden favorite. Comparatively insignificant in its early state, it was, nevertheless, deemed worthy of the untiring attention of such specialists as Henry Eckford, of England; J. C. Schmidt, of Germany, and W. A. Burpee, of the United States, who have done more to enhance its attractiveness than any florists of modern times. From the six or seven common varieties extant in 1876, there have been propagated several hundred named strains, of the grandiflora and the orchid-flowering types, which so far surpass the original that they seem almost of another species. Recounting what has already been accomplished, it is easy to predict wonderful achievements for the future.

SWEET PEA HISTORY

The cultural history of the sweet pea dates back to the year 1699, when Father Franciscus Cupani, an Italian monk, and an enthusiastic botanist of Panormus, Sicily, was the first to cultivate it. He found the original pur-

ple and the white varieties indigenous to Sicily and Sardinia, the seed of which he sent to England and to other countries in Europe. From Ceylon, through the instrumentality of Linnaeus, a Swedish botanist, came the original red variety, the progenitor of all our present-day reds, and the pink and white variety known as the "Painted Lady." Not until 1730 did the seed of the sweet pea become a mercantile commodity, and for a succeeding period of sixty-three years there were but five varieties known—black, purple, scarlet, white and "Painted Lady." About 1833, the striped and yellow varieties were introduced. There was no further advance until 1860, when the "Butterfly," a blue-edged variety, with notched standard, made its advent. Five years later "Invincible Scarlet" won a certificate as the very newest production, and in 1868, in Germany, was originated the "Crown Princess of Prussia," the first sweet pea of a flesh-pink color. The beautiful rose-pink "Adonis" had birth in 1882, but it was soon eclipsed by the better shaded "Princess Beatrice." For many years only a few other varieties of inferior quality were known. About 1898,

the Americans, becoming enthused over the remarkable achievements of Henry Eckford, of England, introduced his seed into California, and were so successful that this state became the

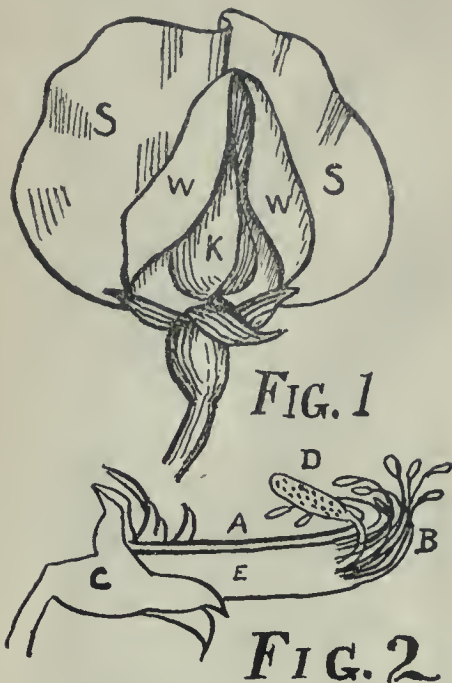


Longitudinal Section of Seedless Apple

world's principal base of supply. It was not long before more than 125 tons of seed were grown, and now in California alone the production is enormous.

* This article will be followed by one dealing with cultural data and suggestions.

Botanists have named the sweet pea *Lathyrus odoratus*, and, on account of its beauty and fragrance, classify it as the queen of the order *leguminosae*, to which it belongs. It has a calyx of five



Sweet Pea—*Lathyrus Odoratus*

Fig. 1.—The standard is shown at S, the wings at W and the keel at K. Fig. 2.—Shows the essential organs. The tenth stamen is at A, the nine cohescent stamens at B, the calyx at C, the pistil, stigma and ovary at D and E.

sépals, from which springs an irregular corola of five petals. The largest petal is called the standard, the two next in size the wings, and the two smaller ones, which envelop the essential organs, form the keel. Because of its resemblance to a butterfly it is said to be papilionaceous. The essential organs consist of ten diadelphous stamens—nine coherent and one by itself—and one pistil, with style and stigma, attached to a single ovary, which later forms the pod containing the ovules or seed. The earliest botanical history dates back to 1650, and although the sweet pea has been slow in its evolution, it has become so popular that its cultivation has inspired great interest among amateurs. At present there are seven distinct classes of sweet peas, and before beginning to cultivate either, it would be well to understand all.

THE GRANDIFLORA TYPE

Class I is the grandiflora type, which is a little later in flowering than the earlies. The vines are of strong, vigorous growth, very free in blooming, with extra large flowers, of good form and substance, coming on long stems in threes and fours, and all facing the same way. In this class we have a great variety of reflex, expanded, folded and hooded forms, in all colors known.

Class II is the orchid-flowering type. Of all the sweet peas grown, these are

the most superior, as well as the most recent. The flowers are much larger than those of the grandiflora type, blooming in threes and fours, on long, stiff stems, with a glistening finish which resembles frosted silver, while the edges of the standards and wings are wavy, or fluted, like a cockle shell. This type was originated in England, the "Countess of Spencer" being the first, and therefore the parent, of the class. The vines grow vigorously; but, while they are very free in flowering, the seeds grow in such small numbers that the prices are high. This peculiarity is due, perhaps, to the fact that the wings fold down over the keel so closely that the essential organs are too well protected, and insect fertilization is often impossible. This type varies from a delicate shell pink to a deep rose. At present the set is comparatively small, "Enchantress," an English novelty of 1907, being perhaps the most beautiful.

DWARF EARLY FLOWERING

Class III is the dwarf early flowering type, which, when in full flower, is only fifteen inches high, blooming in sixty or seventy days from the planting of the seed. The flowers are smaller than those of the grandiflora class, and are slightly notched at the top of the standard. They are very fragrant, and when cut in sprays with the foliage, make cheering house decorations. The class contains only three distinct varie-

ties. Class IV may be termed a collection of freaks, since they are malformations, and not desirable, except as curiosities. Their structure consists in poorly developed standards, and a close, or bud-like, form.

THE DOUBLES

Class V consists of doubles. It is not a distinct class, for doubles are likely to come on any of the grandiflora type. They have two, three and sometimes four standards. Occasionally there will be two or three normal flowers and one double on the same stem. This occurs frequently among the "King Edward VII." Doubles, however, are not given much attention; in fact, they should not be encouraged at all. They do not figure among first-class culture exhibits, but seeds can be obtained from any of the growers, if desired.

CUPIDS AND BUSH PEAS

Class VI gives us the cupids and the bush varieties. Cupids do not grow upright, but spread their foliage over the earth in matted clusters. The bush peas grow compact and erect to the height of eighteen inches. Neither varieties require much moisture, as they are deep rooted, and thrive in the hottest weather. They will not do so well in the same locality as the tall varieties, because their foliage is liable to mildew in damp surroundings. Both classes have many variegations.



A Mixed Garden of Annuals, Perennials and Climbers

Grown last season by Mr. J. A. Wiley, St. Catharines, Ont.

ties, but the colors are quite pretty, "Earliest of All," with bright pink standard and creamy wings, being perhaps the finest.

Class VII is the notched type. There was a time when the standards had a decided notch, or nick, in the centre, and sometimes at the side. The cen-

tral notch, however, has been entirely bred out of the grandiflora class, but occasionally the side notch is seen in some of the Eckford novelties. It was this side notch that got the "Butterfly" variety its name.

In whatever class he may choose to cultivate, the aspiration of every sweet pea grower should be the highest standard of perfection. This means, first of all, the keeping in touch with sweet

pea specialists so that seed of the very choicest varieties may be secured; secondly, a good idea of what constitutes high-class sweet peas; and thirdly, a thorough knowledge of those requisites necessary in their culture. The most approved types are the grandiflora and the orchid-flowering singles. Developing these to the best form and size, and adding to the number of blooms upon the stem, should be the aim of

every enthusiast. A flower stem must be close to ten inches in length, with the flower standard of a circular tendency, when pressed out flat, and measuring close on to two inches across, before a sweet pea can be rated as an ideal culture. To accomplish this one must be thoroughly in earnest, and ready to undergo a certain amount of work, which, if the heart is in it, need not be designated drudgery.

Flowers for House and Table Decoration

FOR some time now it has been fashionable to have table decorations rather flat in general effect, with here and there a high group of flowers, or perhaps only candelabra, to give the needed touch of style. These high parts of the decorations are preferably placed at the ends of the table rather than in the centre in most cases, for it seems to be the general idea that there should be no intrusive decoration to keep persons who are placed opposite each other from seeing one another's faces.

A very handsome decoration seen at a wedding breakfast was all in green, yellow and white. The selection of flowers was a little unusual, as it included, instead of the usual bride's roses and lilies, yellow orchids, smilax, ferns and lilies of the valley. The decoration was used for a table meant to seat eight persons. The table was covered with a magnificent cloth, having a border of lace which reached from the edge of the table almost to the floor. The table was circular.

In the centre of the table was arranged a little pool having a small fountain in its centre. There were gold fish in the pool which carried out the gold and white of the decorations. The pool was surrounded by a very wide and flat rope of smilax, or perhaps it would be best to call it a band. Here and there among the smilax were a few lilies of the valley, and there were two fairly large bouquets of the lilies and ferns placed opposite each other on the smilax. From this smilax circle also rose two tall glass vases whose bases were surrounded with branches of palm leaves. The vases were filled with orchids and ferns. Attached to them were small electric light bulbs which were partly hidden by the ferns. These two vases were also opposite each other and stood midway between the bouquets of lilies.

So far the decorations described have been confined to the pool and the encircling rope of smilax. Beyond this was a large margin of table. From the central decoration and across the rest of the table there extended four ropes of the smilax which hung down over the edges of the table to the bottom of the

cloth. Bouquets of orchids were attached to the ends of these ropes and other bouquets were attached to the ropes about midway between the cen-

maids and is mingled with maidenhair, Farleyance and other fine ferns in a soft, full arrangement that looks easy to do but really requires a great deal



Prize Decorated Dining Table at Niagara District Horticultural Exhibition

tral decorations and the edge of the table.

In harmony with this color scheme the fireplace decorations were in large ferns, palms and yellow and white chrysanthemums. Two great sheaves of ferns and palms on either side of the fireplace were set close together so that the longer branches met. The pinnacle of each had a loosely arranged bunch of yellow and white chrysanthemums, and there were more of these flowers arranged loosely around the base of the sheaves. One of the sheaves was much higher than the other, which made a much more pleasing arrangement than if they had both been of the same length. Loose bows of white gauze ribbon were tied about the sheaves about midway up, and the long, gauzy ends hung to the floor.

For the bridal bouquet the lily of the valley interspersed with orchids is considered an ideal combination. Bouquets made entirely of lilies of the valley are also very fashionable. The rose is the moment's favorite flower for the brides-

of patience and skill. The bride's bouquet is tied with long loops of soft satin ribbon, and from it also depend a quantity of very narrow ribbon streamers, to which are attached clusters of the lilies of which the bouquet is composed. The bridesmaids' bouquets are also tied with broad satin ribbon of the very softest quality. The loops and ends are all of the same length, and are quite long.

For very simple table decorations which are to be done at home nothing is easier and more effective in arrangement than a long decoration down the centre of the table. The decoration is quite low, the highest points being made by the candles at either end. For this style of decoration moss is arranged in a long, irregular line going down the centre of the table. Ivy leaves and ferns laid flat on the cloth branch out from the moss in pleasing variety of line. Under the moss are concealed the receptacles which hold the water for the flowers. These may be of a moss green color, so that they may be

the more readily concealed by the moss and ferns. There should be at least nine of these water-holders, as otherwise it will not be possible to make the flowers look sufficiently scattered. They need not be large or deep, for it takes very little water to keep the flowers looking fresh during an evening. Each saucer or small cup is filled with a wire or iron stem-holder, such as may be had at any of the shops, and which are needed to keep the flowers upright. The moss and ferns may easily be twisted around the receptacle so that it will be quite concealed and the flowers will seem to be planted directly in the moss.

For such an arrangement of flowers almost any kind of blossoms is suitable. Carnations, roses, violets, chrysanthemums and lily of the valley are all admirable for this purpose, and the effect is often enhanced by the mingling of several blossoms. Simple garden flowers also look well in this way. Daisies, which may be had in colors as well as in white, are even more attractive for such an arrangement than roses. If roses are used, small ones are more attractive than the larger and handsomer blossoms. Nothing could be better than Chinese lilies and similar small and rather fragile blossoms.

The flowers are arranged in irregular bunches, as many as there are receptacles of water. The stems should all be of different lengths, so that the flowers will branch out prettily. Some stems should be very short, so that they are quite at the base of the bouquet, and others—a very few—should be quite tall, almost as tall as the candles.

The flowers should then be so arranged in the different sections of the wire holders that they branch out prettily and carelessly. The bunches ought not to be very full, and ferns, tall grasses, and graceful vines should be mingled with the flowers. Not all the bunches should be of the same height. There should be one very low bunch for the centre of the decoration, and then pairs of bunches of about equal height.

Tall candles with shades of the same color as the flowers selected or of a harmonizing shade are placed on the mossy bed at a short distance from each end of the decoration. The moss surrounds the base of the candles. The flowers are then arranged so that they look as if they had sprung naturally from the turf. The taller bunches are placed at the ends, gradually decreasing in size toward the centre. This decrease in height should not be noticeable, but should be altogether irregular.

A very simple decoration for a home dinner, but a very pretty one, is a wreath of smilax quite irregular and consisting merely of the smilax vine laid flat on the table. Intertwined with

the smilax are wide open pink roses of the old-fashioned garden sort. The yellow roses are also most attractive, but are hard to find in the florists' shops in any varieties that would be suitable. The handsome modern roses do not usually serve the purpose. Chrysanthemums may also be used in this way. In the centre of this wreath may be placed a very low bowl, also filled with short-stemmed pink roses or roses and forget-me-nots. The candelabra are placed at the ends of the table, or, if it be a circular table, at the four imaginary corners.

Square and rectangular enamelled and gilt baskets are also used for floral centrepieces. Some of the gilt baskets are quite long and rather narrow, and are filled with soil, the roses and ferns being planted in this soil exactly as in the garden.

In sending boxes of flowers from florists' shops the newest fancy is to have picture-boxes instead of flower designs, as have been fashionable. The flower boxes, of course, are always popular, since they are so much more appropriate than any others. The new boxes, however, with their bright and funny pictures, are also attractive.

Grafting Dahlias

Max Moineau, Toronto

Dahlias can be grafted in two ways. First, take the tubers of two different plants, as nearly alike in shape and size as possible, cut them obliquely across, fit the cut surfaces together as perfectly as possible, and after tying with raffia, seal the joint with soft shoemaker's wax, to keep out the air, then plant in a pot of sand. In the hot-bed the cut surfaces will soon unite. Be careful not to have too much moisture about the tubers, or they will rot at the joint. This method is generally known, but is not often practised. It will not change the color of a flower, and it has a tendency to produce sports, which eventually revert to the stronger original plant. However, by saving seeds of some of these sports it sometimes helps in the development of new varieties.

The second method of grafting is, I think, my own idea, and therefore original. It is accomplished with a slip and a tuber. Take as good a tuber as possible of the kind you wish to graft, being careful not to remove the eye, then bore a hole into the tuber the size of the slip you have chosen to insert from another variety. After the slip has been inserted, seal it in the tuber with a bit of shoemaker's wax, and plant in a pot of sand. Let the shoot belonging to the tuber grow for a time, to establish the life of the tuber and the union of the slip, then in about three weeks cut off the shoot, leaving

only the slip. Finally, after hardening out from the hot-bed, transplant in the garden as you would other tubers. I have had better results from this method than from root grafting.

Growing Dwarf Trees

Exactly how the tiny trees of Japan are produced is known only to a score or so of individuals, says the *Windsor Magazine*. A Japanese Fellow of the Royal Horticultural Society was good enough to supply the following interesting facts relating to the methods employed.

It would seem that the quality essential to the successful dwarf tree grower is patience—infinite patience, backed by a fund of calm resignation unknown to the western mind. Fifty years is named as the shortest period in which a really good and saleable dwarf tree may be grown, while a lifetime is not long enough to produce the highest examples of the art. The tree artist merely makes the beginning; his son, or perhaps even his son's son, reaps the reward of his labors.

Dwarf trees are produced from seeds, or in cases where this is not practicable, from carefully selected cuttings. When the young plant begins to grow it is tended with ceaseless care, and from the commencement of its career its natural tendencies are subjugated to the will of its master. Each twig, each leaf, as it makes its appearance, becomes the object of the closest scrutiny. Shall it be permitted to grow, and if so, in what direction? May it not be advisable to cut it away altogether, and encourage growth elsewhere? These and a dozen similar questions occupy the mind of the Japanese artist, and upon their correct solution depends the ultimate value of the tree, for to be perfect the dwarf must possess a shape and balance equal to the best life-sized models.

Avoid draughts of cold air on plants, as they check the growth and often induce attacks of mildew. Plants like fresh air, but object to cold draughts.

Alstroemeria—Peruvian Lily.—This is a distinct and fine genus, which does not seem to have found a home in our gardens to the extent that might be expected. One or two kinds are hardy, and as charming as any flowers on a warm soil. *A. aurantiaca* and *A. Simsii* are, as far as my experience goes, the hardiest and best bloomers. I have raised a large colony of these charming plants from seed. The seed was sown in April and they came up the following April, and bloomed the same season. They were *A. Chilensis*. There were several shades of color among them.—Roderick Cameron, Niagara Falls, Ont.

What Amateurs Can Do in January

START the New Year aright, by resolving to have a better garden next season than you had last year. Plan the garden in advance. Draw a diagram on paper and draw it to scale. It is interesting work.

pose. Make a diagram of it. Draw lines to represent the rows as they will be and write the names of the vegetables that you intend to grow in the rows.

Did you start some house bulbs in September or October, as was suggested

success or failure, telling how you planted the bulbs and how you cared for them. Take photographs of them in bloom and at other stages of their growth and send them to this office. An important point in successful indoor bulb culture is to have the temperature as uniform as possible. Water often enough to keep the soil moist.

Watch the house plants for pests, the most troublesome of which are the green and black aphid or fly, red spider, scale and mealy bug. A dry temperature is conducive to the increasing of these pests. For the aphid, use a strong solution of tobacco water. The best preventive against red spider is a moist temperature and sprinkling the foliage, especially on the lower side. Scale may be gotten rid of by washing the leaves with strong soapsuds and rinsing afterwards with cold water. Mealy bugs should be brushed off plants with a small brush or a piece of stick. Destroy them as soon as they appear.

Prepare now for forcing some plants for Easter. Try the hortensia, the greenhouse spiraea and freesia.

Write to the seedsmen and nurseries and ask for their catalogs. The best of these firms advertise in *THE CANADIAN HORTICULTURIST*. Study the catalogs and make your selections early.

If too much heat is generated in the hotbed, it is necessary to raise the sash occasionally. When doing so, hang a curtain so as to prevent entrance of cold air and injury to the seedlings.



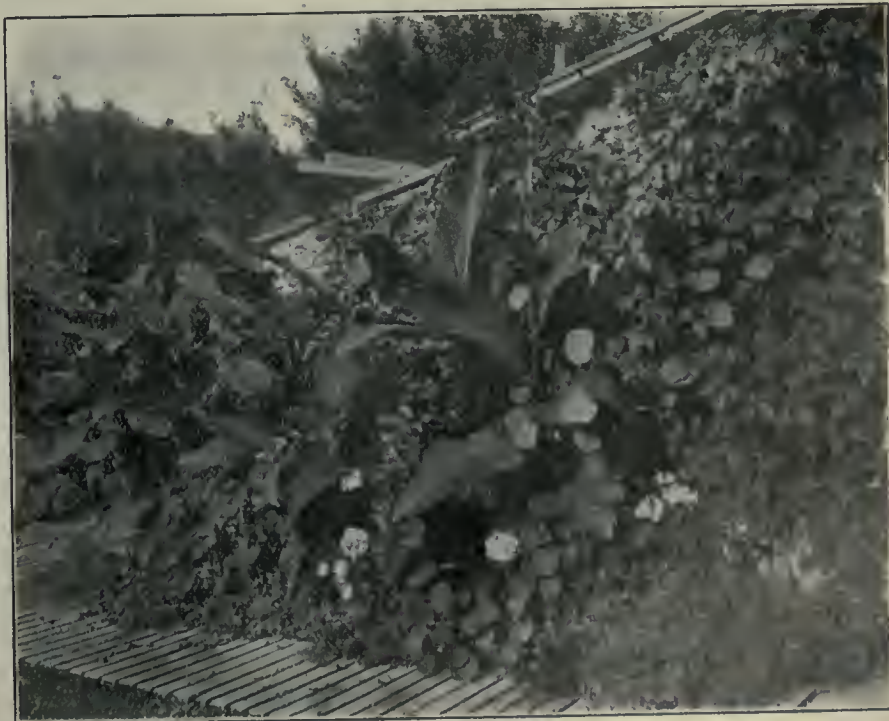
A Beautiful Spot in the Perennial Border

If you intend to lay out new grounds, plan with a view to the effect that the planting will produce in after years. A few general principles should be observed. Unless the plot is small, avoid straight lines as much as possible. Plan the lawn so that there will be an open space, keeping the trees and shrubs at the back and on the sides. If the area is small, the lawn should be level. On large grounds, a more pleasing effect may be produced by having the surface undulated. Walks and driveways should be as few as possible. On large grounds, they should curve gently from the point of entrance to the house.

Plant trees and shrubs in harmony with the surroundings. The largest trees should form the background. Trees of darkest foliage should be farthest from the viewpoint. Objectionable scenes may be hidden by judicious planting. Plant in groups. Occasionally single specimens with individual characteristics may stand alone. Trees and shrubs of high-colored and odd-colored foliage should be used sparingly.

Plan to have a kitchen garden next summer. You can grow better vegetables than can be bought and you get them fresher. Measure the plot of ground that you can devote to this pur-

in *THE CANADIAN HORTICULTURIST* for those months? If so, write a letter for publication, stating your experience,



Tropical Effects Produced With Cannas

The Creeping Evergreen - Euonymus

For covering smooth stone walls, the creeping *Euonymus radicans* is an excellent vine. Low walls of any kind have a nice appearance when clothed with this vine, its dark, small, evergreen leaves contrasting well usually with the color of such walls. When walls are high, some vine with heavier leaves looks better, the euonymus appearing too frail in such cases.

The euonymus clings closely and makes no unattached shoots, just what is wanted usually for furnishing a low wall. As a rule, the plain leaved one is the better sort for the purpose, but should the fence to be covered be of a very dark color the variegated leaved one may sometimes be used to advantage. The variegated leaved one is sometimes planted in positions it does not suit, such as on plastered walls, where it has been noticed; and very much out of place it was, too!

An opinion is sometimes expressed that this euonymus is slow growing. This is a mistake. It is because of its small leaves that the impression of slowness prevails, and there is not much side growth to it for a while, but in upward growth, it should not be considered a slow grower at all; given good soil it will ascend a wall in a satisfactory manner.

Wistarias

Is there more than one kind of wistaria, and which is best? Does it occupy much space, and does it like sun or shade? Is the Jackmanni a good climber to plant?—T.H., Thetis Island, B.C.

There are three or four species of wistaria, and a number of varieties in each species. The most common and best hardy species is the *Wistaria Chinensis*. In favorable locations and soils, it attains great size. It easily will cover 300 square feet, and oftentimes more. Unless it is desired to train it for special purposes, little or no pruning is necessary. The freedom of blooming can be enhanced, however, by cutting back the branches when dormant. It prefers a deep, rich soil, but if such is not available it will do fairly well in a drier soil. It prefers sun to shade. A variety of wistaria often cultivated as *W. Chinensis* is *W. Multijuga*. It is a Japanese type. The flower clusters are twice as long as the former and much looser. The writer does not know a variety of Wistaria called Jackmanni. *Clematis Jackmanni* is an excellent hardy climber and will thrive in most localities if given reasonable care.

Stock Not Stack

Will you kindly inform me what the term "stack" means in the process of graftage? I saw it mentioned three or four times in the December issue?—M.A., Sherbrooke, Que.

The appearance of the word "stack" in the article referred to was a typo-

graphical error. It should have been "stock." In graftage, the "stock" is a plant or part of a plant upon which a scion or bud is inserted. In addition to this use of the word in connection with graftage, the term "free stock" is sometimes used with reference to seedlings.

A Rustic Summer House

An essential feature of well-planned grounds is a summer-house. It can be made a comfortable, useful and ornamental retreat amidst the flowers and shrubbery. When selecting a place for it, do not stand it by itself in the centre of the lawn. Locate it in a retired corner of the grounds or well amongst the flowers at the side, so that you may sit and hear the hum of the bees, or see the flowers looking in upon you, and catch, perhaps, the fragrance of a clump of mignonette. The summer-house is a



A Cheap Summer House

fitting place for communion with nature—a place to sit and think.

The summer-house should be unpretentious in design and free from trumpet-ery embellishments. It must be waterproof, and constructed of materials that will endure. Native woods, undressed and unadorned, are useful for the purpose. The illustration on this page represents a cheap and well-made summer-house on the home grounds of Mr. W. C. Morris, Brown's Nurseries, Ont. The floor was built of second-hand matched flooring, on two by eight-inch joists and sills. The roof was made of material similar to the flooring. The diameter is twelve feet, octagon in shape. There are eight posts, four inches in diameter and seven feet high. The rails were made from the tops and branches of the young trees out of which the posts were gotten. The cash outlay was less than six dollars and two days of one man's time. This summer-house is strong, cheap and effective. It could

easily be duplicated on the lawn of most readers of THE CANADIAN HORTICULTURIST.

Hydrangeas for Early Bloom

What is the proper way to treat a house hydrangea so that it will bloom early in spring?—M.M., Toronto.

To secure early flowers from a tender or house hydrangea, the wood or growth of the plant should have been well ripened the previous autumn, and the plant kept cool and dormant until January, when it should be brought out into the window or into a temperature of about 65 degrees and started into growth. Syringe or spray the branches with clear water every day to induce growth. Keep the soil moist but not soddened with water. If necessary, the plant should be re-potted into a pot two or three sizes larger before top growth has started much. The roots should not be disturbed very much in re-potting. Hydrangeas like a rich, loamy compost, good drainage, and to be kept well watered when in full growth.—Answered by Wm. Hunt, O.A.C., Guelph.

Floral Notes

Testing novelties in seeds and plants should be done cautiously.

The manure for a hotbed should come from the horse stable. Never use cow manure, unless mixed with straw.

Do not allow potted bulbs to become dry at the roots. Keep them supplied plentifully with water. If you are growing bulbs for early spring, watch them closely.

When repotting plants, do not use pots more than one or two sizes larger than the one in which the plant has been growing. Water once as soon as the plant is potted and repeat only when necessary.

In watering plants, one must use common sense. A sprinkling that penetrates the soil only half an inch or so is of little use even if applied every day. It is best always to give the plants a good soaking, and then leave them alone until they again need similar treatment.

Stockesia—Stocke's Aster.—*Stockesia-cynæ* is a comparatively new plant of sterling merit. I find it to be perfectly hardy without any protection. It is one of our choicest autumn flowering perennials, growing to a height of three feet, and bearing a profusion of lavender blue flower, three inches across, closely resembling asters. There is no better flower in the border for cutting. Grow it in damp, porous soil to have it do well.—Roderick Cameron, Queen Victoria Park, Niagara Falls, Ont.

The Growing of Tomatoes*

W. C. McCalla, St. Catharines, Ontario

THE tomato is one of the commercial vegetables, and one that is going to have a great future. In this article, I shall refer chiefly to growing the main crop of tomatoes outdoors. While we all may know enough to improve the crop, we do not always put into use the knowledge we have. We are engaged as part of that great multitude whose business it is to feed mankind, and it should be our pride to produce tomatoes and other crops of a good quality at as low a cost as possible. I do not mean by that that there is any virtue in letting Canadian canners fix the price of tomatoes at such a price as leaves us less than a fair profit, or that there is any virtue in letting the transportation companies absorb most of the profits, but I do think that it is our business to increase our crops and decrease our cost of production. If we cannot produce tomatoes as cheaply as some other people, we will lose business in the long run.

PRODUCE BIG CROPS FOR CHEAPNESS

I would like to outline briefly some of the effects that go to produce a big crop of tomatoes. There is always more than one way of doing a thing. It is an important factor in the production of cheap tomatoes to produce a big crop. Of course, the early crop is somewhat different. I am speaking chiefly of the main crop of tomatoes. To grow a large crop of tomatoes, we must get plants produced from good seed. These plants must be set out in suitable soil and properly ventilated. The crop must be taken care of and well cultivated before it is ready for the market.

HAVE GOOD SEED

We need good seed, and by good seed I mean seed that has high germinating power, and that will produce tomatoes of a good flavor and of a uniform type such as we desire. When you take two tomato plants grown from the same seed in the same condition, and put them out in different soils, there is a wonderful difference in the result. I had some striking illustrations this year. Good seed is the foundation

and in order to get it, I think that every grower should select his own. It will mean a little work year after year, but I am sure that it will pay. You should not only select the early ripening fruits, but fruits from the best vines that come the nearest to your ideal of what a vine should be. Place stakes on these selected vines and allow the fruit to ripen perfectly, and gather when thoroughly ripened. Slice off the top of each tomato and squeeze out the seeds with the adhering pulp into a pail of water and let it ferment for twenty-four hours, and then pour off the seeds and the pulp and wash. Take out heavy seeds and dry quickly and you will have seed of bright color and high germinating qualities.

of manure into the soil to give drainage.

It was an exceedingly difficult matter to get good plants last spring. It was practically impossible to get seedlings out in the cold frames. When the farmers were forced to put them out, they encountered bad weather. I saw 1,000 plants that turned yellow and went back; they made no growth for two or three weeks. A stunted plant, like a stunted hog, is a poor proposition into which to put feed and labor. I have heard men say that you cannot kill a tomato plant, consequently they handle them as roughly as possible. It is hard to kill them, they will stand a lot of abuse, but I am satisfied that abused and stunted plants never give the results that thrifty plants do.



The Fairyland Scene Which Snow Produces

They will come up from two to three days ahead of the regular purchased article, and make a thrifty growth from the start, a growth that you will know is a safe foundation on which to build a crop.

STARTING SEED AND PLANTS

For the late crop, we plant our seed the last week in March in hotbeds, putting the seeds in flats. When the plants are large enough to handle, in about two or three weeks, we take them out into smaller flats and place these plants in the hotbed, giving them as much air as possible. We put from 100 to 200 plants in an ordinary flat, made from soap boxes. When these begin to crowd, usually about the first week in May, we put them into frames outside, putting three or four loads

This double handling does not take so much extra time as one might think. I do it nearly all in stormy weather, when it is too unpleasant to work outside. I like to put them about four by four when they finally go into the frames; it makes them thrifty in every way, and they are ready to make growth as soon as they go into the field. The soil on which tomatoes are planted should have, as a first consideration, good drainage. My preference is a rather light, sandy loam, thoroughly underdrained, and I get my best crop from the higher parts of the field. This light soil grows the very best tomatoes, potatoes, melons and squash, and a great many other crops. Be sure and have it rich enough.

* A portion of an address delivered at last convention of the Ontario Vegetable Growers' Association.

Greenhouse Construction for Vegetable Growers*

J. D. Fraser, Leamington, Ontario

THE growing of vegetables in Essex county is not a business of choice with us, but of necessity. For years the fruit industry was the main industry of the section along the shores of Lake Erie. Great areas were planted in peach trees, and many growers had all that they were worth invested in the business. Then a frost came and wiped out the orchards. We then began to look for something else to grow, with peaches as a side line. With that end in view, we put up some small greenhouses in a very modest way and began growing tomatoes, which proved very profitable. As a rule, our tomatoes mature two or three weeks earlier than those grown in any other part of the Dominion, and therefore we were able to sell our tomatoes at a good price. We again replanted our peach orchards, and about five years ago, they were cleaned out a second time, and thus we had to go into vegetable growing on a large scale.

Our first houses were small and were not convenient. The stress of the business made it necessary to improve them. We find it important that the greenhouses shall be located as convenient to the dwelling-house as possible, because it is something that has to be looked after very closely. If it is far away from his dwelling-house, the grower is much hampered.

We have strong winds from the south-west that come across the lake. We like to have our greenhouses sheltered from these winds, because they are easier to heat, and it is easier on the house. In no case, however, is it advisable, either for defence or protection, to exclude the house from all the benefit of the sunlight; we want every possible ray of sunlight.

Our first houses were built of chiefly wood and glass, and their life was very short. I know one that was put up that began to decay the next year. When there is any chance for the water to lodge, the timber begins to go down at once, and for that reason we have discarded the wood as much as possible. We are now using cement. It is cheap, and once constructed it does not rot out. For supports, we use gas-pipes, set in cement, being very careful to place a pole six inches below the ground to keep the gas-pipe from rotting off at the surface. We have a great deal of chestnut. I do not know whether or not it is as good as cyprus, but we find cyprus to be good, and very much better than pine, and I think that the life of chestnut is two or three times as long as pine.

Question.—How does it compare with the price of cyprus?

Answer.—I do not know. We can buy it at very reasonable prices.

The next material is paint. One should never put up any timber in a greenhouse without first painting it; that is very important.

There has been considerable discussion and difference of opinion between greenhouse growers as to the kind of glass to use, whether to use buttled glass or lipped glass. If you use lipped glass, you must lay it in putty; if the glass is quite square and well cut, buttled glass is all right. If the glass does not fit, it will leak, and leaks are injurious. I think twenty by twenty is the right size to use.

Mr. T. Delworth, Weston.—How heavy do you have the bars?

A.—About two and one-half inches is the standard; it depends somewhat on the system of construction used. From a vegetable grower's standpoint, I would not build a house over from 80 to 100 feet. My reason for that is that if a house is too wide, it is hard to get enough air into it, and in order to finish vegetable plants in the house, they have to get a free circulation of air or they will be too short.

Q.—How do you construct the roof?

A.—We built our last house fourteen feet, ridge and furrow. We have the glass laid east and west or north and south; we have a house each way. The east house, built a couple of years ago, is running north and south, with the sun striking on the side in the morning and in the evening on the other side. The house I built this spring is in shorter spans of fourteen feet, and set the other way. Where the house ends, there is a glass slide of about three feet in six, and we can open this sash on the south and ventilate, and we can also open the sash at the top. In May and June, when it is very hot, a current of air comes in. The fresh air comes in at the bottom and the hot air goes out at the top. It is as comfortable in the house on a hot day as outside. We drive our teams alongside of the house and take out the plants. We have a main walk in the centre and a narrow footpath leading from it, and we gather our plants in a low wagon and take them out in that way. If the house is 100 feet wide, you are never more than fifty feet from the centre. Where it used to take five men and a team to get plants out in the ordinary way, one man and a team can now keep a gang busy in the field.

BENCHES

If tomatoes are grown with the in-

tention of maturing the crop in the house, we have to start our seed about the first of January, and as the days are usually dark, it is hard to start the seed on flat or ground benches. Therefore, it is a good idea, in building a house, to have a few raised benches in order to get bottom heat. You can always manage to get good plants by using bottom heat to get them started. After they are started, you can use the ordinary flat benches. If you have a little border of cement running round them, it is so much the better, but you can get along without it if you wish.

The matter of heating, I suppose, is the greatest item of expense. Vegetable growers have been put to a great deal of expense through the ordinary plumbers of the local towns undertaking to lay pipes in the greenhouses. I have found for my own part that it is very foolish to give a man a contract to put in the pipes in a greenhouse unless you are sure that he knows what he is doing, or unless you know yourself how to manage it. The first time I had pipes put in, they were almost useless, and I had to take them out again. I then learned how to lay pipes myself. When a person is experienced and knows what he is doing, it is all right to go on with it, because any ordinary plumber can arrange the pipes if you show him how to do it. But the ordinary plumber does not know anything about heating a greenhouse, and therefore it is best to give it to some person who thoroughly understands it.

Mr. Delworth.—What material do you use for gutters?

A.—Two by five chestnut scantling. We support them by gas-pipes, and where the rafters strike this two by five, there is a bolt that lies over the scantling. We take a brace and bit and bore holes near the edge of the scantling, and then cut out with a chisel two little corners, and the bolts drop in there. There is no chance for the water to lodge, and the rafters strike against this piece and the end is cut off square. The bolt goes through and touches the beam, and there is no contact point except the one small corner. The gutter is made of galvanized iron, with the edge turned down about half an inch to make it stiff, and that fits into the notch in the rafter.

Mr. Delworth.—Do you heat by steam or hot water?

A.—Steam; our snowfall is very light.

Mr. Delworth.—From my experience of heating from hot water, if I had a

*A portion of an address delivered at the convention of the Ontario Vegetable Growers' Association last November.

gutter like that, I would be very much troubled with snow. I would prefer one large house, thirty feet in width, standing alone.

Mr. Fraser.—These things work out according to the location in which one lives. We have found it to be to our advantage, when we build an extra house, to leave a space between that and the other house of a little more than is necessary, in order to have room to drive through with the team, and in this space we have a protected warm place for hardening the plants.

There are some houses in our section heated with hot water, and they work very satisfactorily. Where the house

centre of it, using the earth to bank it around the outside. The sash was made for sixteen by sixteen glass, and we have two sashes joined together by hinges, so that they could be folded up and put away. Sometimes we had four inches deep of earth, and sometimes seven by seven of earth to each plant. Of course, these plants were heavy to handle. We found a convenient way to handle them by simply opening the sash on the outside and driving along with the team. These houses were easy to ventilate; that is only practical for a cheap house.

Q.—Which would you think was the most economical for vegetable grow-

up to ten degrees higher than it will the other one at the same time of day.

Sparrows Destroying Buds

Peter Barrett, Truro, N.S.

During the past few years I have been noticing the increasing number of house sparrows and the mischief being done by them on the red and white currant bushes. Already one-half or two-thirds of the buds have been picked off this season by these birds and they still keep at it so long as there are buds left or leaves put forth in the spring. I first discovered them doing the mischief some years ago, in the fall, when hard, dry frost set in. I was inclined to spare them as food for them was scarce, but apparently they were worse when the buds began to open in the spring. Now, however, when the mild weather is prevailing, the birds seem bent on destroying all the buds of these bushes.

Bushes, five feet high, that ought to have yielded in the past, and for years to come, eight pounds of fruit per bush annually, are destroyed; some of them I dug up. I thinned out the others and hoped for better results from open bushes. But, alas, the bushes being near a spruce hedge, were at a disadvantage. A snowdrift destroyed them. The sparrows find shelter in a hedge. I then set out bushes in an open, exposed view, but find that the birds are still destroying the buds on them.

Potato pits should be made on dry ground so that the bottom of pits will not be wet. They should be about two and a half feet deep by three feet wide and any length desired. The potatoes then should be put in the trench and covered well with straw with eight to 10 inches of earth on the straw. When hard weather sets in, the pits should be covered with a foot of manure.

At a meeting of the Toronto branch of the Ontario Vegetable Growers' Association, the following officers were elected for the ensuing year: Pres., Thos. Delworth, Weston; vice-pres., C. Gibbard, Doncaster; sec.-treas., F. F. Reeves, Humber Bay; executive committee, A. Shuter, Bracondale; R. Larkin, Toronto; J. W. Rush, Humber Bay; C. Plunkett, Woodbridge; and H. J. Sharpley, Bracondale; directors on provincial board: C. Aylmer, Sr., Humber Bay; Jas. Dandridge, Humber Bay; F. F. Reeves, Humber Bay; J. W. Rush, Humber Bay; John McKay, Doncaster; C. Gibbard, Doncaster; J. J. Brown, Humber Bay; auditors, Ed. Eagle, Weston, and A. Shuter, Bracondale. Mr. Thos. Delworth was appointed representative on the board of the Canadian National Exhibition.

The annual meeting of the Ottawa branch of the Ontario Vegetable Growers' Association was held last month, at which the following officers were elected: Pres. D. Smith; vice-pres., W. Trick; secretary, T. Mockett; representative on provincial board, I. A. Farquharson, Hull.



A Portion of Mr. Fraser's Greenhouses at Leamington

is large, it is not practical to heat with hot water, because it won't circulate, but some of the large American growers are using hot water in the ordinary return-flue boiler, and then pump the water through the pipes. Of course, that is only practical where it is a large plant. They claim that where they have a large plant, it is very satisfactory. The water has got to go, and every portion of the house is heated perfectly.

We first began with very low houses, but we found that there was not sufficient air in them. I would rather have a house fairly high, except in a case where it was intended to grow plants only for setting out in the field, as we did when we first started. We found that we could build a very cheap house by taking posts and setting them in the ground about ten feet apart, eighteen inches high, and spiking planks on the inside, running up the ridge with about one-third pitch, and then digging out a trench in the

ing, a house forty feet, or two houses twenty feet wide, open underneath?

A.—If I was not going to have a house more than forty feet wide, I think I would make just one house. It would be wide up to thirty-five feet anyway for one house.

Q.—You think that would be preferable to small ones?

A.—Yes, except where two houses might come in handy if you wanted to use one at a higher temperature.

Q.—I mean to have them connected?

A.—I think I would prefer the one house.

Q.—Which would you take, a large one or a small one?

A.—The big one is the easiest to heat. When you get a large house heated, it will not cool off so fast, but it takes longer to heat.

Mr. Delworth.—You have a larger body of air in there?

Mr. Fraser.—In our case, we get more benefit from the sun. It shines in the sides of the house and heats it

The Cream of the Kootenay

One of a series of articles on fruit growing in British Columbia, written by a staff representative of The Canadian Horticulturist, who recently visited the leading fruit districts of that province.

A LONG the banks of the Columbia River, in what is known as the Kootenay District, is located one of the best fruit sections of British Columbia. Some of the best lands in the province are, as yet,

of but little value owing to drawbacks that will be removed in time. These include poor transportation facilities, distance from market and other similar handicaps.

The unusual advantages of the fruit lands near Robson are bringing that section to the front rapidly. The land is rich and easily cleared, good markets are readily available, and the



Eighteen Duchess Apples
on a Fifteen-inch
Branch.

transportation facilities are the equal of any section in that province. Robson is situated on the Columbia River. It is one hour and ten minutes run on the Canadian Pacific Railway from Nelson, a city known as the inland metropolis of British Columbia. Within one mile of Robson is Castlegar Junction, which gives direct connection to the boundary country, Rossland, Nelson and the main line points east and west. Steamers bound for the Arrow Lakes, and making connections with points on the main line, leave Robson daily. Transportation facilities are ideal when compared with lands in other sections of the province where the growers have to depend on a freight steamer that calls at intervals or when they have to drive many miles to market their fruit.

Our representative had heard much about Robson, and decided that the best way to get at the true facts of the district was to visit the land. A day was spent in going over the property in company with five other gentlemen who were interested in fruit lands. One of the party, a Mr. Snider, had spent \$500 in looking over fruit lands in other parts of British Columbia. He was so impressed with the soil and possibilities that he bought two lots and asked to have others reserved for him. Others in the party have since purchased lots.

Many of the settlers were busy clearing their property and erecting houses for their families. This is an easy task owing to the small timber on the land and the close proximity to a sawmill where lumber can be purchased and "rafted" to the owner's waterfront.

Most of the soil along the river is of excellent quality and is suitable for the culture of all kinds of fruit usually grown in that latitude. The lower land is surveyed into long, narrow strips, with an average acreage of fifteen acres. Each lot has a river and road frontage. The north end of each lot abuts the upper bench which rises gradually to a height of about 400 feet. The land can be cleared at a cost of from \$30 to \$80 an acre. The land is valued at \$100 an acre, which is very reasonable.

NO IRRIGATION NECESSARY

The average annual precipitation of the district is about 28 inches, and, what is of more importance, the rainfall is fairly evenly distributed throughout the year. May and June each average about two and one-half inches of rain; July, one and one-quarter inches; August, three-quarters of an inch, and September one and one-third inches. 1907 has been rather a wet year. In August as high as seven inches of rain was recorded. It is evident, therefore, that sufficient moisture may be calculated on for filling out the fruit and producing a heavy crop. Irrigation, therefore, is unnecessary.

In addition to the rainfall a considerable amount of moisture percolates from the mountains and, on some lands, forms a natural sub-irrigation system. Even in an exceptionally dry summer

the soil, on much of the land, is moist enough to grow the most tender crops. The land has a gradual slope to the Columbia River, which makes a costly system of drainage unnecessary. Abundance of good drinking water is available.

A great natural advantage possessed by this land lies in the fact that it faces the south. It is protected from the north by a high bench of land that makes it an almost ideal spot for the culture of tender fruits or early vegetables. The protection afforded from the north winds makes the temperature several degrees warmer than in other places less favorably situated.

MILD WINTERS

No fear of winter-killing need worry the Kootenay fruit grower. For the last three winters the lowest recorded temperature in Nelson has been six degrees below zero, and that was in February, 1907, when British Columbia experienced one of the worst winters of modern times. In an average winter in this district, zero is very seldom recorded. The winter seldom commences before December or extends beyond February. In March, as a rule, cattle can find a living in the brush on the clover which runs riot and grows abundantly everywhere. Late frosts are practically unknown.

It should be carefully noted, however, that these mild winters are confined to a comparatively small area, and that one hundred miles or so from the centre of the Kootenay a much lower temperature is met with. The Kootenay district is a sunny district. It is not in the Dry Belt, and does not suffer from



Bird's-eye View of Robson, B C., with the Columbia River in the Distance.



A Fairly Well Established Orchard Expected to Yield \$500 to \$1000 an Acre.

drought, hot winds or dust storms, but it enjoys a very large proportion of bright, breezy, sunshiny days, which develop the fruit quickly and give it that brilliant color, texture and flavor that the sun, and the sun alone, can give. At the same time the heat is never excessive, the highest recorded during the last three summers being 94 degrees in the shade. The nights are pleasantly cool, and yet not cool enough to check or prevent the ripening of fruit. On November 2, the representative of THE CANADIAN HORTICULTURIST was picking wild strawberries at Robson. Sweet peas, roses and dahlias were in full bloom and there had been no frost up to that date.

EXCELLENT MARKETS

While there are some other districts that can produce fruit equal to that of the Kootenay district, there are none in British Columbia that can compare with it for markets and transportation facilities, and in this respect the Robson District is very favorably situated. The great Northwest of Canada is almost at its doors, and with its large and ever-increasing population, provides a good market now, and must continue to provide a market for all the fruit that can be produced for many years to come. Indeed, owing to the comparatively small area of first-class fruit land, it is a question if the supply will in the future meet the demand.

Nelson, Rossland, Trail, Grand Forks, Fernie and many other large places are within a few hours' run from Robson. The markets, in proportion to the available supply, are almost unlimited. It will not be long before the hardy varieties of fruit will be shipped from the Kootenays to Great Britain.

The following prices may be taken as representative: Strawberries, \$1.75 to \$4 a twenty-four pound crate; raspberries, \$2.75 to \$4 a twenty-four pound crate; cherries, \$1.50 to \$2.50 a twenty pound box; red currants, \$1.25 to \$2.25 a twenty-four quart box; black currants, \$2.50 to \$3.50 a twenty-four quart box; gooseberries, \$1.25 to \$2 a twenty-four quart box; apples average \$1.75 a box, forty pounds; pears, \$1.75 to \$2.25; potatoes opened at \$50 a ton and at the end of the year were \$25; carrots, \$20 to \$25; turnips, \$25; parsnips, \$30; beets, \$30; onions, \$45; eggs, 35 cents to 75 cents a dozen; hay, \$16 to \$30 a ton.

Taking into consideration the prices paid and the large crops raised, it is not surprising to hear of big returns being realized. A conservative estimate places the yield from an acre of trees in full bearing, anywhere between \$500 and \$2,000 a year, and from an acre of strawberries \$200 to \$1,000. Many ranchers say that they are making much more.

While the orchard is maturing, it is customary to grow vegetables or berries between the trees, and practically every kind of vegetable does well and commands good prices. Poul-

try and dairy products also serve as useful side lines, while trees are growing.

As a place for a home, Robson offers exceptional advantages. The climate is mild in winter and not too hot in the summer. A church has been established and a school will be opened at an early date. Settlers at Robson are not forced to give up the comforts and pleasures of life. Nelson, being only a short distance away, affords an opportunity to shop in a fairly large city, and the enjoyment of evening entertainments. Daily papers are delivered at Robson every morning. Should the province continue to develop as rapidly as it has during the past few years, land that is now selling for \$100 an acre will treble in value in the not distant future.

Fishing and hunting are both of the best. Deer were seen while our representative was inspecting the land. The scenery is beautiful. All things considered, it would be difficult to find a more ideal land in which to live, or a more natural and congenial industry in which to be engaged. This is the view of those people from Manitoba and the other western provinces who are now making their homes in British Columbia.

A number of experienced fruit men, who had visited almost every part of British Columbia in search of fruit lands, have selected Robson as their future home. Most of the land around Robson is owned by a real estate firm (McDermid & McHardy, of Nelson, B.C.), which has issued a well-illustrated booklet showing views of the country and giving information for intending purchasers. After visiting this part of the country one does not wonder that Robson has been named, "The Cream of the Kootenay."



Branch of Royal Anne Cherries.

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EDITORIAL

OUR FRUIT IN ENGLAND

The British Columbia government and fruit growers are to be complimented on winning the gold medal at the recent exhibition of the Royal Horticultural Society in London, England. Their energy and exactitude in displaying the products of British Columbia orchards at this exhibition in England and at others in other parts of the world are most commendable. Nova Scotia also made an excellent display at the Royal Exhibition. It is to be regretted that Ontario made such a poor showing. The fault lies, not in the quality and character of the fruit, but in the condition in which it arrived. This was due largely to haste and carelessness in the matter of preparing the exhibit for shipment. After being packed and prepared for the Ontario Horticultural Exhibition, some of it being kept in cold storage, then exposed to the warm temperature of Massey Hall and handled over and over again by judges and passers-by, which bruised the fruit and caused slackness in the package, the exhibit was hurried off with little or no attention being paid to the matter of re-packing and re-selection. Fruit for exhibition in England cannot be expected to arrive in good condition unless it is placed in the hands of the transportation company in a condition that will give it a fair chance.

Ontario fruit can hold its own in competition with the world. We would suggest that next year the government employ an expert to purchase and select the best samples of fruit grown in the province, and to pack it with the same care that is exercised by the packers of British Columbia and Oregon. By so doing, it may be expected that Ontario will redeem the reputation made by the unfortunate shipment that was sent to England last fall.

BRITISH COLUMBIA INSPECTION

In various issues of THE CANADIAN HORTICULTURIST during the past the question of government inspection and fumigation of nursery stock in British Columbia was discussed, and it was suggested that an inspection station be established near the eastern boundary of that province. Many letters that support the stand taken by us were and are still being received. As the matter is one of great importance to British Columbia fruit growers who desire to purchase nursery stock from the eastern provinces, we feel that their interests demand further comments on the subject. The question is not whether British Columbia can grow as good nursery stock as Ontario or the other provinces, but whether it is a fair deal on the part of the local government almost to compel British Columbia growers to purchase home-grown stock when they want that grown in the east. Neither is it a fair deal for eastern nurserymen; to ship stock from Ontario, for instance, to British Columbia costs money and entails some risk. In spite of these drawbacks, eastern nurserymen feel that they can compete successfully with coast and western United States firms, but under present conditions they are almost prohibited from entering the province by the unjust and unreasonable British Columbia law that compels all stock to be fumigated at Vancouver. Nursery stock for points in eastern British Columbia must go to Vancouver for inspection and fumigation, and then be returned to destination, which place, perhaps, it has passed by rail two weeks previous. If the British Columbia government and coast nurserymen would ask themselves the question, "How would my stock fare if consigned to Windsor, Ont., and compelled to go to Ottawa for fumigation before finally reaching Windsor?" they soon

would see the position of eastern nurserymen. Before the present law in British Columbia was passed, eastern nurserymen shipped stock successfully to all parts of that province, and seldom was there any kicking over losses. This goes to show that the kicks that come nowadays are due to the abuse in inspecting and handling that the stock receives.

The success of the short courses in fruit growing held recently at Grimsby and Trenton, under the supervision of the Ontario Government, marks a new departure in the progress of the industry in that province. No commendatory words are necessary to justify their continuance. Such courses cannot be too highly valued. They add interest and zest to the operations of the orchard. Such courses are given with just enough theory to make them interesting. If full advantage is taken of them, they will add materially to the annual income of the attendant fruit growers. The government is to be commended on instituting these courses.

Apple Shippers' Association

At a meeting of representative apple shippers held in Toronto on Nov. 27, an association was formed to be known as the Ontario Apple Shippers' Association. The following officers were elected: President, Samuel Nesbitt, Brighton; secretary-treasurer, John Brown, Brighton; executive committee, D. C. Matthews, Colborne; Matt. Stetsinger, Thornbury; Frank Everist, Toronto; J. G. Anderson, Lucknow; R. J. Graham, Belleville; E. D. Smith, M.P., Winona; F. L. Fowke, Oshawa; M. S. Schell, M.P., Woodstock; W. H. Matthews, Trenton. Among the resolutions passed were the following:

1st. That whereas, there are about 450,000 barrels of apples stored at different points in the province of Ontario for export to Europe during the next three months, and, whereas, it will require from 200 to 250 refrigerator cars per week to move this fruit, that we make a demand on the railways along whose lines these apples are stored to furnish sufficient refrigerator equipment to handle this business as required. The bulk of this fruit will require to be shipped during the months of January and February.

2nd. Shippers shall have the option of directing apples via Portland, Boston or St. John, as service is inadequate at any one port.

3rd. That where cars are fitted up for protecting the apples from frost, such as the putting in of straw, shavings, boards, etc., such fittings be left in the cars and returned to the shipping points for the reloading of apples, as such equipment this season (particularly straw) is unusually expensive.

4th. That in case the railways along which apples are stored are unable to furnish refrigerator cars, that shippers be supplied with good tight box cars, and be allowed expense for fitting them up, and also that the man in charge of said cars be carried to and from the seaboard free of charge, and that the cars so fitted up be returned to the shipper who fitted up same.

Strawberry Plants.—Growers of strawberries recognize the superiority of Canadian-grown plants. Among the Canadian nurseries that supply high-class plants, is that of W. H. Vanderburg, Poplar Hill, Ont. Mr. Vanderburg has been in the business over nine years, and is in a position to furnish plants that are reliable and true to name. He offers a large list of varieties. A handsome catalog has been issued, which is valuable, not only for its descriptions of varieties, but for accurate cultural directions. Mr. Vanderburg is an old and well-known advertiser in THE CANADIAN HORTICULTURIST.

Our Apples in England

W. Hieatt, Covent Garden Market, London

During the past few years there has been great improvement in the manner of packing and sorting Canadian apples, but it is still faulty in one or two particulars. Occasionally we find a mixture of varieties in the same barrel and very often a mixture of grades. This condition of affairs should not be. Buyers soon spot the brand on such packages, and when the next consignment arrives, it does not realize satisfactory prices. The best policy is to pack fairly and honestly.

Canadian shippers should consign always to the same buyer in the same market. By so doing, more satisfactory results and prices are secured. Canadian apples are doing well this season, as ours are scarce and poor in quality.

Keep Up Standard

Editor CANADIAN HORTICULTURIST.—The following circular has been sent by the Fruit Division to all the Dominion fruit inspectors. It will be of interest to all who have apples in store for repacking:

"You will note by the sales' catalogs, particularly from Liverpool and Glasgow, that there is a surplus of the smaller grade of No. 1 apples on the market at present, the effect being, of course, to greatly lower the price for this class of apples. This is an indication that you should in no way relax your vigilance in the examination of this grade. Brand 'Falsely Marked' any barrel marked No. 1 in which the apples fall short in point of size. In order to maintain the reputation of Canadian apples, it is more necessary that emphasis be given to the matter of size in a year like this, when the general crop is undersized, than in an ordinary year when there should be a normal quantity of large apples."—A. McNeill, Chief, Fruit Division, Ottawa.

Ontario Fruit in the West

Despite the efforts which eastern fruit men are putting forth to capture and retain the markets of the prairie provinces, there is less Ontario fruit on sale in our cities and towns this year than for some time past. Consumers paying the prices ordinarily charged for barrelled apples here expect a better quality in the article than a good proportion of the Ontario fruit offered in our markets can show.

Despite the Fruit Marks Acts, packers seem to be able to fill up the packages pretty much as they like and the centre of many a barrel contains altogether too varied an assortment to rank in the grade it's stamped. Such practices as these, continued for any time, will work for the permanent closing of this market to Ontario fruit. The east will learn to its own loss that this country cannot be made a dumping ground for unexportable fruit.—*Farmer's Advocate*, Winnipeg.

Want New Fruit Market

"In the opinion of the fruit growers of Ontario and the dealers of Toronto the time has arrived when the city of Toronto should have an adequate fruit market, open on equal terms to all the transportation companies running into Toronto." The foregoing resolution was passed unanimously at a joint meeting of representative fruit men, dealers and a special committee of the City Council, held in Toronto on Dec. 18. Among the fruit growers in attendance were: W. H. Bunting, St. Catharines; Wm. Armstrong and H. St. C. Fisher, Queenston; L. A. Hamilton, Clarkson; and P. W. Hodgetts, secretary of the Ontario Fruit Growers' Association. Those who appeared for the dealers were: W. H. Dawson, T. Ferguson, Chas. Kempton, Thos. Vance, R. W. Husband and David Spence. Alderman Foster was elected chairman of the committee, and Controller Hubbard, Alderman Chisholm and Ald-

erman Lytle were present. The meeting was attended also by Property Commissioner Harris.

Addresses were made by nearly all those present, in which the importance of the fruit trade to Toronto was urged. There was unanimity in declaring that the present accommodation at the Scott St. market was inadequate, and that all transportation companies should have equal facilities. The consensus of opinion was that a permanent market, to be kept open the year round, should be established at Bayside Park. A revenue of from 10% to 15% on the outlay was promised. It was pointed out that the proposed location would be convenient for marine as well as railway traffic.

Property Commissioner Harris said that it would be impracticable to report on the advisability of suing Bayside Park until the viaduct question had been settled. Neither would it be possible to use the wharf on the east side of Yonge St., because it was a private one. He was of the opinion that something should be done to better the facilities for handling fruit, and would do what he could to improve matters. Mr. Harris predicted that the radial railway lines soon would carry most of the fruit traffic. Commissioner Harris was instructed by a resolution to report on the matter.

COOPERATIVE COMMITTEE

Mr. A. E. Sherrington, Walkerton, reported as follows: "The committee held two meetings during the year 1907. At the first meeting, various methods were discussed for carrying on the work of cooperation. It was decided that we should again cooperate with the departments of agriculture for Ontario and the Dominion in holding a large number of fruit institute meetings, when the benefits of cooperation could be brought before the growers. Your committee desires to express the appreciation for the help that the Dominion Department has rendered to us by sending their inspectors to assist at the fruit meetings. We trust that they may continue to give us their aid at the first meeting in March.

"The subject of book-keeping for the association was discussed. A committee was appointed to work out a uniform system of book-keeping for the associations. A great deal of information was obtained from the associations on the subject, and at the June meeting it was definitely arranged to get out a set of counter check books and a uniform plan for as many of the associations as wished to avail themselves of the offer. Ten associations adopted these books, but owing to rush of work at the factory, there was some delay in getting them out. The committee also discussed getting out other books for the associations, but nothing definite was done. The committee hopes, however, that they may be able to work out some possible scheme for another year. A number of resolutions relating to the industry generally were passed.

"During March, April and June, somewhere in the neighborhood of 60 fruit institute meetings were held. These meetings were addressed by Messrs. D. Johnson, Gifford, Carey, Baker, myself, and a number of other fruit growers. In most cases, these meetings were well attended and a great deal of interest was taken in cooperation and the industry generally. In connection with the meetings, a large number of associations were founded. We have now something over 40 in operation, and so far as I am aware, they are all making a success of it.

"Your committee finds that there is a great deal of work to be done yet to bring the cooperation to perfection. Cooperation has taken hold of the people in America. A few weeks ago a man from Cornell visited this province to study the cooperative systems in use here. He expressed surprise at finding such a young province as Ontario so far advanced in the methods of handling the products of her orchards over such states as New York. He said that it spoke volumes for the enterprise of our government. A few days ago I had a letter from a gentleman

who wishes to have the opportunity of laying before the associations a plan for the consolidating of the associations, and with that end in view, a meeting will be held in the near future, probably in early January, to hear this gentleman's suggestions."

Up-to-date Sprayers

It has been our privilege to inspect the latest product of the Spramotor Co. at London, who are to be commended for the enterprise shown in their many machines. Their hand-operated machines have for so long a time been recognized in Canada as standard, that a mere mention that they are being turned out in larger numbers each year is enough. Our attention has been drawn to their latest type of horse-power and gasoline-power machines.

These machines show great ingenuity. The horse-power machine is capable of doing a great range of work. Having a capacity of 12 nozzles at 125 lbs. pressure, makes it possible to spray all small and medium sized trees, such as apples, pears, plums and peaches, perfectly with one man, and a boy to drive. The plan is to use one line of hose with an extension pipe of suitable length and an eight-nozzle cluster or smaller for small trees, and, all except the largest apple trees, can be sprayed in passing. The large air chamber (12 gallons capacity) gives ample reserve to stop for short intervals at each tree if desired. The motor being of large capacity will pick up the pressure from tree to tree, not possible hitherto. By a simple change of spray rods the rig can be changed from a tree spraying rig to spray vineyards, potatoes, or grain crops.

The extent to which this company has gone to make the sprayer under the control of the driver is commendable. As the pressure is regulated automatically, no attention is required in that respect, yet a means is provided to throw in and out of gear by hand. The stand pipes that spray the grapes are so arranged that they can be raised or lowered or made wider or narrower, each independent of the other, thereby providing a means of keeping the nozzles the right height and distance from the vines, all of which is under the control of the driver without moving from his seat.

Growers who have 100 acres of grapes, that are sprayed five times during the season, say that they have never during the entire season had a nozzle clog, which tells the story of the nozzle protector. We could not suggest any improvement to this fine rig. It is a gratification to have a Canadian concern who are so well ahead of the times.

The new features in the way of nozzles and accessories all tending to greater effectiveness and economy, show great activity and invention. Mr. Johnson, of Forest, who used one of the power machines this year, says he saved \$50 in labor and material, besides doing a better job. We would recommend any who require changes or renewals in their spraying rigs this year to send for really valuable literature, supplied free by the SPRAMOTOR WORKS, 1169 King St., London, Ont.

As an indication of the development of the nursery business in British Columbia, it is interesting to note that M. J. Henry, of Vancouver, recently shipped from that city eight tons of seeds and trees to Shanghai, China.

At the Royal Horticultural Society's show in London, Eng., the fruit exhibit of the British Columbia Government was awarded the gold medal. Nova Scotia fruit also received awards. The Ontario exhibit arrived in bad condition.

During the several years I have taken your journal, I have read it carefully each month. It has been a valuable aid to me, and I believe it is the best fruit publication with which I am acquainted.—A. Ross Matheson, Pomona, N.Y.

NOTES FROM THE PROVINCES

By Regular Correspondents and Others

Nova Scotia

G. H. Vroom, Dominion Fruit Inspector

After a long, hard struggle, the apple crop in Nova Scotia has been gathered and safely stored in the fruit houses along the line of the Dominion Atlantic and Halifax and South-Western Railways. The weather conditions have been unfavorable and help very scarce. On Oct. 21, the whole country was white with snow and thousands of barrels of apples on the trees. In some instances the snow, in addition to the weight of the fruit, broke the trees down. In a few localities slight damage was done by frost on the same night, but nothing serious.

Prices for Gravensteins have been disappointing, owing to the fruit being very green and, in some instances, spotted. Other varieties are clean, or nearly so, and prices are good. No. 1 King, Ribston and Blenheim net from \$2.75 to \$3.50 a barrel; No. 2, about \$1 less; No. 3 have not paid for shipping. Most of this grade, however, have found their way to the evaporators, the proper place for them.

Up to date, Jan. 1, about 250,000 barrels have been exported. This does not include what has been purchased by Americans and shipped to Boston and New York. Several thousand barrels have been shipped to South Africa, and have arrived at Cape Town in good condition. The crop in Nova Scotia this season will run up to nearly 600,000 barrels.

Prince Edward Island

Rev. Father Burke, Alberton

The fruit situation this year is dispiriting. There was a short crop of apples again, when we expected a large one—one of the shortest in our history; still, across the straits, in Annapolis Valley, the Bluenoses harvested a bumper crop. They are the envy of all Canada this year.

But we must not lose enthusiasm, even if there be not much to rejoice over; our day will come. The officials are appreciative of our position and are endeavoring to console us somewhat. A little success usually produces more exhilaration than any amount of good advice, although both are useful in their place. We are advised to go right ahead and plant out extensively. If the present orchards were in plentiful bearing, the natural impetus of profit would accomplish this.

We have received the enclosed letter from the Chief, urging larger plantings and appreciative of Nova Scotia's profits:

"DEAR FATHER BURKE,—You will no doubt be preparing your program for your annual meeting. I feel certain that some inducement for larger plantings could be offered if you could arrange to organize the buying of the stock. If you were to formulate some plan, such as appointing a committee to look after this matter, at your annual meeting, and were to notify the general public through the papers that this matter would come up, I have no doubt you would prepare the public mind in such a way that when the actual work was begun, planters would be prepared at once to cooperate with you. How does the matter present itself to you? Is there anything practical in it?"

"Many of the fruit growers of Nova Scotia are this year netting from \$100 to \$300 per acre off their orchards. This will pay them if they do not have another crop for five years; but the chances are that they will make from \$50 to \$150 regularly every year.

"In October I took a trip through the Annapolis Valley, and did not visit a single

well-kept orchard where the profits were not extraordinarily large. Prince Edward Island people can do just as well and there is no reason why they should not share in this industry.—A. McNeill, Chief, Fruit Division, Ottawa."

It will now be in order to prepare for winter meetings, wherein all our difficulties and experiences may be fully discussed and new year's work cut out with care and hopefulness.

Quebec

Auguste Dupuis, Village des Aulnaies

We had a cool and very rainy spring, summer and fall. The trees in the orchard and the nursery made a strong growth. Fruits matured late and none except the apples had the sweetness and flavor of other years.

The apple crop in general was below the average. Fameuse, Colvert and Duchess had a very poor crop. Alexander, Red Astrachan, St. Lawrence, Wealthy, Golden and Roxbury Russets, Tolman Sweet and Yellow Transparent produced a fair crop in L'Islet county. The prices realized were \$3 for No. 1, and \$1.50 a barrel for seconds and thirds.

The plum crop was extra good in L'Islet and Montmagny counties. Over 8,000 barrels and a great number of boxes of plums were shipped from five railroad stations. Unfortunately buyers came down from Montreal too early; the plums were too green; they paid \$2 a bushel for the first carload. Growers in every part of the county thought that the fruit suited the Montreal market and made their harvest, but the price went down to \$3.50 a barrel. These un-matured plums did not please the retailers nor the consumers. Those who sold later realized \$9 a barrel in Montreal. All my crop was put up in four and eight gallon boxes, which sold easily at 35 cents a gallon for the finest and 30 cents for common. The varieties considered the most profitable are Early Red, Moore's Arctic, Lombard, Jones' Seedling, Hudson River Purple Gueii, Quackenboss, Coe's Golden Drop, Reine Claude de Montmorency, Yellow Meldowka, Blue Damson, Grand Duke. These sold better in eight-gallon boxes. Bradshaw, Green Gages, Reine Claude d'Oullins, and Washington were packed in baskets, or in four-gallon flat boxes, as they cannot be shipped safely in large packages.

To show what small plum orchards can produce, I will cite that of a neighbor, Mrs. L. M. Déchène, who gathered and sold to the Quebec Fruit Exchange, 1,300 gallons at 25 cents, or \$325. We measured the ground of the orchard; it is only 290 x 90 feet. In the vicinity a Reine Claude de Montmorency tree produced four bushels and a half, measured in presence of witnesses. The tree was not over 12 feet high. Mr. George Boulet, of Cap St. Ignace, gathered 80 barrels (2,000 gallons) in a small orchard of 250 trees, planted 12 x 12 feet in 1896, and 1,800 gallons of Downing gooseberries, planted between the plum trees, which are mostly Bradshaw, Moore's Arctic, Lombard, Gueii, Imperial Gage, Quackenboss, Coe's Golden, and Reine Claude de Montmorency. No crop here gives such good returns with so little work and expense as a plum orchard on good, sandy soil, protected by windbreaks, with currant, gooseberry or raspberry bushes between the rows to keep the snow and dead leaves on the ground for the protection of the roots in winter.

Such crops as this year's create enthusiasm and induce land owners to plant new orchards.

Montreal

E. H. Wartman, Dominion Fruit Inspector

Canadian varieties are turning out very satisfactory in the Old Country, both as regards quality and condition, particularly our little Snow apples, which have brought \$5 to \$5.50 a bbl. This season has been a remarkable one for shipping apples. Iced cars have landed apples in fine shipping condition. Even to-day, Nov. 19, apples are arriving free from frost.

Once within the last 30 years I have had apples in a storehouse frozen so hard as to rattle in the barrels on Nov. 5. One thing that may have induced shippers of apples to load cars improperly was scarcity of cars. I inspected three cars containing, respectively, 300, 304 and 309 barrels. This means 25 tons per car, and necessitates piling five deep, or four barrels on bottom barrels—675 pounds. This weight causes great damage to bottom row, even squeezes them so flat that heads have been pressed out and new barrels had to be secured to replace the damaged ones. Again, in unloading a five-layer car of apples by incompetent men, there is breakage and more loss to be added. The man who loads a car three tiers will succeed in getting his fruit to market in much better condition than the other case. Apples of No. 1 quality are retailing here from \$4 to \$5 a barrel.

British Columbia

C. P. Metcalfe, Hammond

Trees went into winter quarters in fairly good condition. The exceptionally dry season caused the leaves to drop earlier than usual.

Fungous diseases and insect pests were not very troublesome last season; the fruit, in consequence, was above the average in quality. The returns also have been very good. The demand for plums and prunes in the markets of the Northwest and Manitoba having far exceeded the supply, higher prices have been secured for No. 1 apples than has been the case for many years, and prices are still going up.

The provincial government undertook to make an exhibition of British Columbia fruits at different points throughout Great Britain and Ireland, for the purpose of demonstrating the possibilities of fruit growing in British Columbia. The parties in charge also did a little immigration work by giving lectures, illustrated by stereopticon views, and distributing of literature bearing on fruit growing. The British Columbia exhibit has for two consecutive years carried off the gold medal at the Royal Horticultural Society's Exhibition in London, besides many other medals won by the different exhibitors.

Alberta

E. B. Edwards, K.C., Edmonton, Alta.

Raspberries, strawberries, currants and gooseberries grow freely in this district, but as yet few people cultivate them. Apples are being tried, and some have been grown. In November I bought some Lindley grapes that came from Ontario, and paid 55 cents a basket for them.

There are not any handsome ornamental vines here. People content themselves with using the homely hop vine around their houses. I am trying the Dutchman's pipe. I intend, also, to try the Virginia creeper, which grows well in Winnipeg.

Flowers grow luxuriantly. Such roses, carnations and chrysanthemums as Ramsay grows in his greenhouses would be hard to equal anywhere. He has a floor space of 150 x 200 feet. The long period of sunlight is very favorable to growers.

In ornamental and street trees, elm, ash, mountain ash and spruce grow well. We have a Civic Improvement Society in Edmonton. It was founded to encourage the growth and care of trees, gardens, lawns and to improve the appearance of the city in any way possible.

POULTRY NOTES

At this season, when new-laid eggs are scarcest, doubt sometimes arises in the minds of many of us as to whether our poultry possesses the laying qualities that they should or whether the fowl are good, and whether the shortage of the egg supply is the result of improper feeding and housing. Many breeders advertise breeding stock from winter-laying strains. This sounds well, and is sometimes true. The establishment in two or three years of a winter-laying strain is within the power of any one of average intelligence who will set themselves to attain that end.

The present is the best time to take notice. With the use of trap nests, accurate account may be kept of each hen's returns, but this is work that takes up too much time for the average poultry keeper. It is not a hard matter, though, to find which pullets laid first or the hens that laid best through the month. This will not be hard to determine, for in most flocks, not over half the number of hens kept are laying. The best 10 or 12 layers should be branded

that they may be easily distinguished and placed in a separate pen in the breeding season. By the selection of a good male to use with the hens so chosen, in two or three seasons, a laying strain should be established.

With regard to feeding in winter time. By experience, and the experience of others eminently qualified to know, the following mixed

ration of grain is recommended: Two parts of oats, two parts of wheat and one of corn or two bushels of oats, one of wheat and half a bushel of corn, mixed together. Each day, is given with this, of course, some soft food, meat and green food in reasonable quantities. A constant supply of cracked oyster shells and mica grit is kept in a convenient place in each pen.

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The above shows the latest model of the H. P. SPRAMOTOR, working on large apple trees with an 8-nozzle cluster. The air tank holds enough reserve pressure to spray one side of a large apple tree, and the pressure will not get too low. Guaranteed 125 lbs. pressure with 8 nozzles open. Easy work for one or two horses. Also fitted for vineyard, potatoes, grain crops and orchards. Never have to look at the nozzles, they're always clear. This AD. will not appear again in this paper, therefore if interested, write now to

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A PRODIGIOUS VINE PLANT ST. VINCENT'S VINES

THESE are a few of the testimonials we have received from those who had some of our vine plants this year. They speak for themselves. We need not add anything to it, as they are recognized as the best by all those who have tried them. They mature two months previous to all others and produce ripe grapes as early as the 20th of August.

Mr. V. Tillier, Montreal.

Tewksbury Centre, Mass., Sept. 16, 1907

We take pleasure in saying that the St. Vincent's Vine plants you sent us last spring have all grown very well and with great facility. At present they are three and four feet high. We think much of them for the future, as they are first-class in every respect, and we can tell you they have surpassed all the other varieties we received from different parts of the United States on every point: height, strength, etc. We take pleasure in recommending them and if these few words may be of any use to you, you are at liberty to publish them and believe us, yours truly,

CONVENT OF THE R.R. FATHERS OBLATS, Tewksbury

Dear Sir,—

St. Sebastien, Que., Sept. 28, 1907

I have seen in the *Argus* that you are taking orders for your St. Vincent's plants for spring delivery. The 25 I had from you last spring are so nice that you can book my order for 100 this year.

Yours very truly, ELZ. O. BELANGER

Mr. V. Tillier, Montreal.

Mattawa, Ont., Sept. 24, 1907

Sir,—The 1,080 St. Vincent's plants you shipped me last spring have all grown up very well, and in this part of Ontario I am confident they will give the best results I ever had; they have surpassed my expectations. I have been in the horticulture business for a long time and I have tried about all the varieties on the market in U.S. and Canada, and none of them have given such results. They grew remarkably fast and come on any soil. All of my friends who have seen them have been surprised and I would not be surprised if they send you orders. For my part I want you to keep 1,500 plants for next spring as I want to have a good vineyard of these plants. Very truly yours,

N. THERRIAULT

Mr. V. Tillier.

Cote St. Laurent, Que., Sept. 3, 1907

Would you please let me know what care the St. Vincent's Vines I had from you last spring will require this fall. They are very nice; all of them have grown very well; they are 4 and 4½ feet high this first year. They are prodigious. One thing we have noticed, my gardener and myself, is that the wood has already got yellow, a sign of maturity, and I am confident that they can resist any frost as the wood when it is matured is very "hardy," that is, can resist the greatest frosts. I am convinced that with the St. Vincent's plants, vine growing can now be practised with success in Canada as well as in France. Please enter my order for the same quantity for spring delivery.

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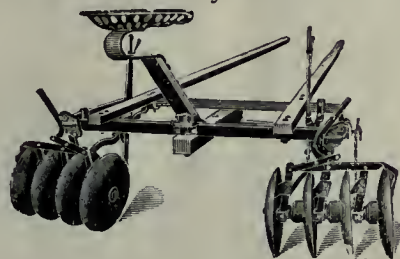
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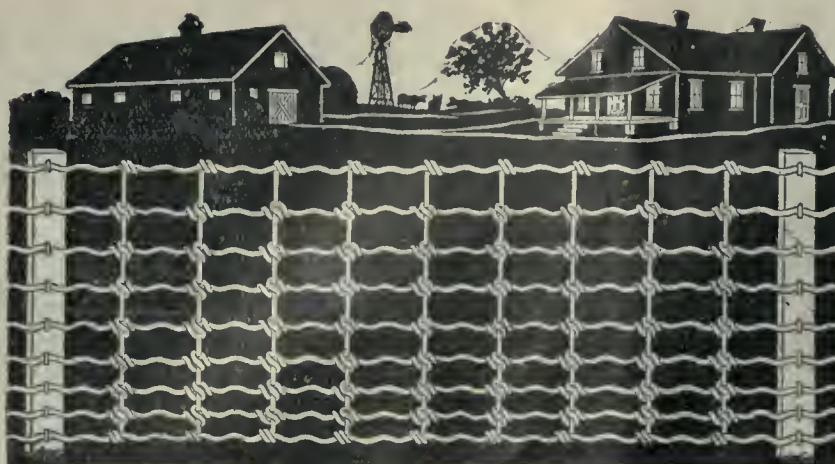
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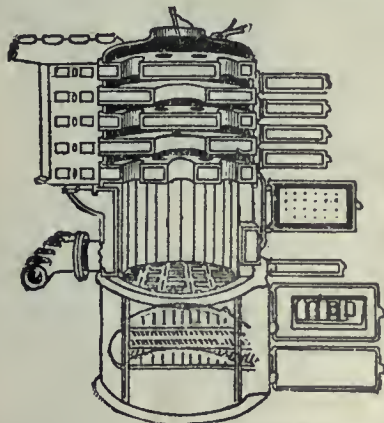
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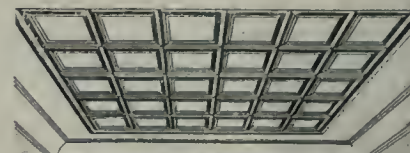
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Brown-Tail Moth

P. J. Shaw, Truro, N.S.

In company with three others, I returned recently from Digby Co., where we had been looking over the district infested with the brown-tail moth. In three days we succeeded in finding only three or four nests. While the whole of the infested area was not gone over, and while our search necessarily was incomplete on account of the snow, yet the result is very encouraging. It indicates a considerable reduction in the numbers of this serious pest.

If the campaign against this insect is carried on as successfully as it has been since the time of its discovery in the province last spring, there is a fair prospect of holding the insect in check, if not of exterminating it completely.

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Apples in Halton County

R. J. Hare, Milton, Ont.

From time to time writers in THE CANADIAN HORTICULTURIST refer to the apple producing features of the different parts of the province, but not much has been said about Halton county. Great possibilities are lying dormant in that county. A large percentage of the farms contains land that is well adapted for growing winter apples. Much of the soil is mixed with limestone, which is excellent for apple trees. Most of the farms are well drained, although there are some small sections of the county that are flat and heavy.

The mountains that run through the centre of the county make excellent shelter from the west. Close to these mountains lie farms that would grow apples to perfection. Many of

them are paying the farmers large profits. There are a few men who are making more money from 10 to 12 acres of apple orchards than they would make from 100 acres devoted to grain and stock. There should be more large orchards in the county.

The farmers should cooperate in the selling of their apples. Some of them to-day receive only \$1 a barrel for choice winter varieties, when they should get \$2 to \$2.50 in the orchard.

There is some stony land that should be planted with apple trees. This land gives no return to the owners, but will grow apples fairly well. The northern portion of Nelson township, and the southern end of Nassagaweya, contain land of this type, and might be planted with apple orchards profitably. The apple business in Halton county should be not only a side line, but a leading industry.

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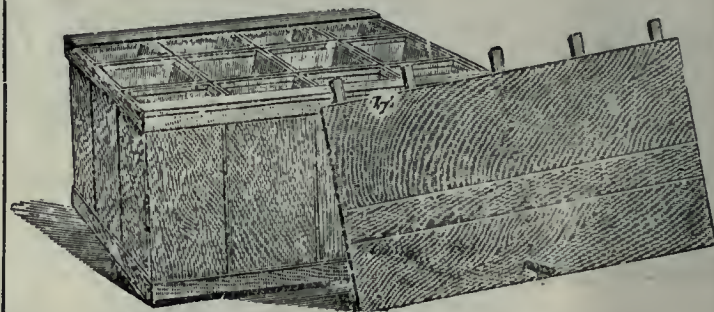
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Vol. XXXI

FEBRUARY, 1908

No. 2

Some Misapprehensions in Regard to Spraying*

H. A. Surface, M.Sc., Harrisburg, Pennsylvania

THERE are many popular misapprehensions in regard to spraying.

The following are some of them:

We spray to prevent the coming of insects. This idea is erroneous, except in the case of the codling moth.

Bordeaux mixture is an insecticide. This is not so, as its insecticidal properties are of little or no value. It is a fungicide. Only when it is combined with Paris green or some other poison does it become an insecticide.

It is thought by some orchardists that Bordeaux mixture will cure plant diseases. It does not cure. It prevents. For insects, we spray to cure; for fungous diseases, we spray to prevent.

There is an impression that beneficial results may be had by spraying fruit trees when in bloom. This is wrong. The practice is bad. Nothing is gained and much is lost. Spraying at that time kills the bees that are required in the fertilization of the bloom, and also injures the essential organs of the flowers and thus harms the fruit crop.

Some persons have an idea that spraying will poison fruit and vegetables. There is no danger from this source except a theoretical possibility if the poison is applied just before gathering, with no rain afterwards. Applied at the usual strength, one would have to eat 200 cabbages to consume enough Paris green to kill. There is no danger to live stock from spray mixtures on grass.

Many persons think that if a little is good, more is better. They are inclined to increase the strength of the mixture. The truth is that too much is worse than too little. It is liable to injure the trees, and it will not perform the desired result.

Mixing spraying materials by guess is a common practice. For accurate and economical results, the mixing must be done by definite proportions. The exact strength should be known and accurately measured each time materials are to be mixed.

A few growers hold the opinion that spraying can be done when the wind is blowing and get good results. It is useless to spray against the wind.

It is thought by some that the harder the liquid is blown or thrown against the tree, the better. Such is not necessary for good results, and has even been known to prove damaging by

only by the use of proper apparatus. It should be thoroughly adapted to the work, simple and strong in construction and easy to operate. For economical spraying, the best of apparatus is none too good. However, this does not mean the most expensive.

It is sometimes advocated that one spraying is enough. The best orchard practice demands more than one application. With the spraying mixtures that are in common use, and for the purpose of combatting all classes of orchard troubles, at least four applications should be given during the season.

Some growers imagine that they can spray only a few trees in the orchard and not the others, and at the same time control the pests. If only a few trees in the orchard are infested with insects, especially scale insects, or infected by disease, the entire orchard should be sprayed. Only by this means can the trouble be successfully combated.

There is a feeling among certain orchardists that the formulas for spraying mixtures can be changed at will. This is a mistake. The wiser plan is to leave the formulas alone and to mix the ingredients in the proportions and manner recommended by experts. There is chance of danger in meddling with the standard formulas, especially by persons unacquainted with the chemistry and effects of insecticides and fungicides.

Spraying is sometimes practised with no definite purpose in view. The operation should be definite and for some one thing, or purpose. The orchardist should know what he wants to accomplish. Usually, a good reason is not difficult to find. Spraying should be performed at the proper time for the most effective results in combatting the various insects and diseases.

Thorough spraying is the keynote to success in fruit growing. Spraying in itself is not sufficient. It should be practised in conjunction with the proper methods of cultivation, pruning, thinning, and other modern orchard practice.

Satisfactory Results

Our advertisements in the December and January issues of THE CANADIAN HORTICULTURIST have brought a large number of enquiries from distant points, as well as from all parts of Ontario. England, India, South Africa, Australia, United States and British Columbia are all represented by letters that we have received from readers of THE CANADIAN HORTICULTURIST. These enquiries show the large field that THE CANADIAN HORTICULTURIST covers, and its high standing among those interested in horticulture. The enquiry from India was for stock to be supplied to a Canadian estate owned by the person replying to our advertisement in THE CANADIAN HORTICULTURIST.—Stone & Wellington, Toronto.

driving the spray liquid into the stomata of the leaves.

That sprinkling is spraying is the opinion of the inexperienced. They are not the same. A nozzle that throws a coarse spray should not be used. The spray should be fine as mist.

An idea is prevalent that the height to which a spray can be thrown depends only upon the power of the apparatus. It depends more on the height of the apparatus, the length of the hose and the extension rod.

It would seem that some growers consider that any kind of apparatus, no matter how poor, is good enough for the work. Good results are secured

* A portion of an extemporaneous address delivered at last convention of the Ontario Fruit Growers' Association.

What Kind of Location and Soil for an Orchard?

Prof. G. Reynaud, La Trappe, Quebec

IT is the general opinion that apple trees should thrive anywhere and in any kind of soil. They are planted in any kind of soil and with any exposures and, not until after costly experience, does the planter realize the fact that it should have been otherwise, and that for the trees to thrive they should have been planted under special conditions.

A remarkable fact has been noticed in the Province of Quebec, namely, the influence of open water on our fruit trees during winter. The county of L'Islet, and the neighboring counties, owe their celebrity as fruit districts greatly, it is true, to the intelligence of their inhabitants, but also in a measure to the presence of open water during winter. Not that the normal temperature has been modified nor the trees better from a change of temperature, but the air is more saturated with moisture, the cold is drier and the evaporation is less from the trees, which is better for them. This fact is not peculiar to the Gulf of St. Lawrence, but has been noticed wherever large rivers form rapids of any size.

From a different aspect the proximity of great expanses of water, even when covered with ice, has another marked influence on the vegetation of fruit trees. Cooling later, they help to temper the first frosts and diminish the havoc wrought at a time when the wood is not fully ripened. In the spring time the ice moderates the first heat of the sun, preventing premature growth and exposure. The conclusion follows, that situations near large bodies of water are preferable.

One of the greatest obstacles to be overcome, before success follows, is the dominating winds. An orchard which has no protection will never bear anything; the trees take on impossible shapes, and live without giving any profit. This can be remedied to a certain extent by placing stakes to the trunks and arranging the rows so that the trees protect one another, but this is not always sufficient. It is necessary, then, as often as possible to choose situations which are naturally protected either by a hill or by woods. Trees of rapid growth, of dense foliage, and with powers for resisting wind, form excellent windbreaks. For this purpose I know of nothing better than the poplar. Having once seen this tree, one is convinced of its efficiency and its superiority over other kinds. Above all things, it is necessary to observe, when surrounding an orchard on all sides, that the branches of the windbreak do not

extend to the ground; for though it is necessary to stop the heavy winds, it is also needful to have currents of air passing through.

What sort of land should the planter choose for his orchard? The best, no matter what it cost him. The best land, generally speaking, is that on which one can grow all kind of crops with equal results. It should be remembered that an orchard in full bearing, well looked after, and composed of the best varieties of apples, yields more to the acre than any other crop. Therefore, one need not fear to devote the best piece of land for this purpose. If one only wishes to grow apples for domestic use, having a small orchard, a poorer piece of ground might be taken. The work of improving, manuring, breaking, seems at times long and costly, but what returns!

An important point in the preparation of the land is the drainage, without which it is impossible, at least for the majority of land, to establish a paying orchard. It is with this object in view that we should start all our work, and stop at nothing to give perfect drainage,

not only in the work done, but also in the materials employed.

Apart from the best land which the orchardist can and should choose for the planting of his orchard, there are other lands which might be advantageously employed in fruit growing; lands difficult of cultivation, easily drained and which are well suited for apple trees. I know certain rocky hillsides which are covered with flourishing orchards. In any case, do not neglect the trees. Good attention, pruning, manuring and spraying, also, are necessary. It would be a grave error to reason otherwise, and let the trees shift for themselves, under the pretext that one did not wish it to be the principal, but only a make-shift crop. One cannot imagine a more pitiable sight than a hillside covered with stunted, wind-battered trees, the remains of an orchard planted several years ago and never given any care. The import of this is that one should look closely into the word culture and then one would not pretend to follow fruit growing without caring for his apple trees in the same manner he would any other plant or crop on the farm.

Enemies of the Plum

V. R. Gardner, Macdonald College

BLACK KNOT affects the branches and twigs of the plum and cherry.

Large, wart-like, knottyswellings are produced. They usually occur mainly on one side of the branch, often causing the branch to bend more or less abruptly. They usually appear in spring or in early summer, at which time they are yellowish green in color. Later they become a dark green, and finally coal black. During the fall and winter they are studded with minute pimples, or "pustules," which are filled with spores for the spread of the disease. The swellings may be all the way from a quarter of an inch to several inches long. They not only rob the tree of considerable food but interrupt the flow of sap and nutrients, check growth and finally cause the death of the part of the branch above the swelling. Some varieties are much more susceptible to black knot than others. The European varieties as a whole are more subject to it than those of any other class, the Damsons being especially liable to attack.

TREATMENT FOR BLACK KNOT

Spraying is only a partial remedy. The same treatment that will control brown rot and shot hole fungus will also

serve to hold black knot in check, but it will not completely succeed. The cheapest and best means of control is to cut out and burn the knots as soon as they appear. The affected branches should be cut at least three or four inches below the swellings to make sure of the removal of all traces of the fungus.

GENERAL RECOMMENDATIONS

As before stated, there are many other plum pests besides those that have been mentioned. There are a large number of insects and nearly an equal number of parasitic fungi occasionally met with. Special treatments could be, and often are, recommended for each one. For the ordinary person to keep them all in mind, however, is next to impossible. As a rule the treatment which will control the two or three chief pests will also hold in check the others, and for the most part they are the only ones that the grower need keep in mind.

To summarize, there is one very important plum insect and three very important plum diseases. Any one or all of these pests may appear any season and in sufficient numbers or sufficient virulence to practically ruin the plum crop. For them, the fruit grower should

always be prepared. The general spraying treatment recommended for the plum is an application of Bordeaux mixture just before the buds open in the spring; a second application shortly after the fruit sets; a third about two weeks later; and if brown rot is serious, a fourth spray of the copper carbonate of ammonia shortly before ripening. Paris green or some other arsenite should be mixed with the Bordeaux at the rate of one pound to 150 gallons of the

Bordeaux, to destroy any leaf-eating insects, such as slugs, canker worms, and so forth, which are likely to appear.

The plum grower should be equipped with a good spraying outfit (a good outfit that will last for years can be obtained for \$20.00 to \$25.00), and the materials needed in the preparation of the leading insecticides and fungicides. In addition to this, he will need the apparatus described before to use in catching the curculio. The writer is aware that

many fruit growers are unwilling to go to the bother of spraying. They prefer to run the risk of having a good crop ruined by the outbreak of some pest. If such a risk is run, they must expect to meet with frequent loss. On the other hand, spraying is not expensive; it is not a difficult operation; and if properly done, it is the grower's best insurance for a good crop. It means dollars and cents in his pocket.

Fruits Worth Growing in Quebec

Auguste Dupuis, Village des Aulnaies, Quebec

IN the western part of the province of Quebec, from Huntingdon county to Montreal, the varieties giving remunerative crops, and which are most popular at the Montreal and Quebec markets are: Alexander, Red



Beurre Baltet pere

of the province, on account of its short summers, is not suitable for the culture of varieties that mature their wood late, such as R. I. Greening, Baldwin and King. Thousands of these desirable varieties have been planted, none have lived to produce an apple.

Amongst the most profitable varieties are Alexander, Red Astrachan, Duchess, St. Lawrence, Wealthy, Fameuse, Golden Russet, and Calville White, a seedling winter apple, very common in old orchards, a good apple of fair size. Duchess, Fameuse, and Wealthy for the last 20 years have given larger crops than all others, selling easily at \$2, \$2.50 and \$3 a barrel.

Of the cultivated area in Quebec province, only one per cent. was in orchard, garden, nursery and vineyard in 1900, and the yield from this was about three per cent. of the total agricultural products. There are nearly

Pear trees are cultivated with some degree of success. Only a few varieties, however, are sufficiently hardy to endure the severe winters. Flemish Beauty is the principal variety grown. There are about 8,000 trees in orchard; about one-half of these are in bearing and produce 4,000 bushels of fruit.

Several varieties imported from France by the Quebec Government since 1898 are very promising. They have proved hardy north-east of Quebec as far as Temiscouata county, and produce good and fine dessert fruit. Amongst these the "Baltet père" is the most vigorous and fertile. It is an annual bearer of a large and delicious fruit, maturing from November to December. Keeps in good condition in the cellar and does not rot at the core. It does well on the quince, but is preferable as a standard tree. The pyramidal form, with low branches, gives the

Astrachan, Duchess, Fameuse, St. Lawrence, Montreal Strawberry, Ben Davis, Canada Baldwin, McIntosh Red, Canada Red, Golden and Roxbury Russets, Northern Spy, R. I. Greening, and King. The three last named are cultivated with profit only in Huntingdon county and vicinity, for exportation to Great Britain.

Of all these, Fameuse is the best paying apple according to reports from the eastern townships and the adjoining counties of Chateauguay, Two Mountains, Hochelaga, Island of Montreal, of Vercheres, Rouville and Argenteuil counties. Some orchards of 4,000 to 8,000 trees near Montreal are nearly all Fameuse and seedlings of Fameuse. Mr. Robert Hamilton mentions an orchard of 4,000 Fameuse seedlings, none of which equal the Fameuse in flavor, but some of them are better shippers. The Blue Pearmain, Pomme Grise and Bourassa, once very common and much esteemed, have become so unproductive that they have ceased to be planted in commercial orchards.

The eastern and north-eastern part



Some of the Delegates and Speakers at last Convention of Quebec Pomological Society

3,000,000 apple trees in orchard, 1,500,000 in bearing, producing about 1,500,000 barrels annually.

best result in this northern section. Fruit buds on branches above the snow level have not suffered in our coldest winters.

This variety of recent introduction was exhibited for the first time at Paris in 1900, and was highly commended by the Jury on Fruits. I was struck by the vigor and fertility of the original tree at Troyes and of the two-year trees, bearing in nursery.

Messrs. Baltet Frères, the originators, donated 12 of these, dwarf and standard, for trial at the fruit station here, in April, 1901. I have no trees for sale, but advise nurserymen to import and multiply this variety. It is well worth extensive tests.

Fruits Originated in Canada

W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa

Continued from last issue.

THE Fameuse reproduces itself more nearly to type than some other kinds of apples, hence there are a number of other Fameuse seedlings not so well known as those mentioned, which have distinct points of merit. Among these are: Louise, Elzear, Germain St. Pierre, Victoria, St. Hilaire, Fameuse, Sucrée, Green Fameuse, Rufus, La Victoire, Canada Baldwin, Fameuse Noire, Brockville. All of these fruits have characteristics which make it easy to place them in the Fameuse group.

MOST IMPORTANT ORIGATION

Perhaps the most important apple of Canadian origin is the Ontario, which was originated by the late Charles Arnold, Paris, Ont., by pollenizing the Northern Spy with Wagener. This variety is proving very profitable in those sections of country where it succeeds well. It shows plainly the blending of the Wagener and Spy, having the characteristics of both in about equal proportions. It is an early bearer and quite productive, and resembles Northern Spy very much in outward appearance, but usually is more oblate and has more bloom. In character of flesh it is much like both parents, and in flavor also. The following is a description of it:

THE ONTARIO

Originated by the late Charles Arnold, by crossing Wagener with Northern Spy. Fruit, large to very large, oblate, sometimes roundish, slightly angular; skin, yellow, usually well washed and splashed with bright red and carmine (there is also a pale pink bloom which adds to the appearance); dots, few, pale and a little larger and more distinct than on the Northern Spy; cavity, deep, open, slightly russeted; stem, short, moderately stout; basin, medium to rather deep, slightly wrinkled; calyx, small, open or closed; flesh, creamy white, crisp, tender, juicy, a brisk subacid (more acid than Northern Spy), sprightly, slightly aromatic; core, small; quality, very good; season, midwinter to late winter. Tree moderately vigorous, but an early and heavy bearer. One of the best apples, both for commercial purposes and for home use.

THE BAXTER

The Baxter is a large, handsome apple, which is growing in popularity every year. It does not bear much until the tree has been over ten years planted, but from that time on it bears medium crops almost annually. The Baxter has not been exported much yet, but it is such an attractive apple in the barrel that it is bound to be popular, and already high prices have been paid for it, in one instance it having been quoted higher than King, to which, however, it is much inferior in quality. It may be described thus:

Fruit, very large, roundish; cavity, deep, medium width to open; stem, short to medium, slender to moderately stout; basin, medium depth and width, smooth; calyx, open; color, yellow, well splashed and washed with orange-red with purplish splashes; dots, moderately numerous, large, yellow, prominent; skin, thick, moderately tough; flesh yellow tinged with pink, coarse, moderately juicy, tender; core,

small; above medium quality; season, December to February. A very large, handsome apple, but too coarse for dessert purposes and not juicy enough.

OTHER GOOD APPLES

Mention should be made here of the Banks' Gravenstein apple, a sport of Gravenstein which originated with Mr. Banks, Nova Scotia. This variety is much more highly colored than Gravenstein, but resembles it in other respects.

The late P. C. Dempsey, of Trenton, Ont., formerly of Albury, originated a number of good apples by cross-breeding, but two of the best of these only need be mentioned at this time. Both of these are from a cross of Golden Russet female with Northern Spy male. The Walter may be described as very large, roundish, rather irregular; cavity, deep, medium width; stem, short, moderately stout; basin, deep medium to open, almost smooth to moderately wrinkled; calyx, open; color, greenish-yellow, splashed and streaked with red; dots, few, small, white, distinct; skin, moderately thick, moderately tender; flesh, yellow, tender, rather coarse, juicy, melting; core, small subacid, pleasant, high flavor; good to very good quality; season, October. There is a suggestion of Gravenstein flavor about this apple.

ORIGINATIONS AT OTTAWA

At the Central Experimental Farm, Ottawa, considerable work has been done in originating apples, and the results of this work are now beginning



Exhibit of Canadian Apples in Gloucester, England

See notice on another page.

to be apparent. Of about 5,000 trees which have been grown since 1890, there have been seventy-seven varieties named. A large proportion of these will not be of any commercial value in the best apple districts, but owing to their hardiness it is hoped

have been named, only four of which seem to be superior to the varieties imported from Russia.

The remaining fourteen sorts are natural seedlings of Wealthy, Swayzie and Lawver, and it is expected that from the large number of seedlings of Wealthy, Swayzie, Fameuse, McIntosh, Northern Spy, Lawver, and others, yet to fruit, many fine apples will come, as about twenty-five per cent. of those which have fruited already are equal or better than named varieties

of their season now on the market. The trees of some very interesting crosses between McIntosh and Lawver began to fruit this year, and valuable results are expected.

When the list of apples is completed for the Annual Report of the American Pomological Society, probably 300 named varieties of Canadian origin will be recorded. This list will also probably be published in a report or bulletin of the Central Experimental Farm, Ottawa.



Apple Tree Before Pruning

that they will be useful in the colder parts of Canada where the apple is not successfully grown at present. In addition to these 5,000 trees there have been fruited over 200 trees of about 800 originated by Dr. Wm. Saunders, the result of work in crossing the Siberian crab, *Pyrus baccata*, with different varieties of the apple. Of these, many varieties have been named and distributed to several hundred points in the Canadian prairie provinces, and are proving hardy everywhere they have been tried.

Of the varieties of apples originated at Ottawa which were named, four are from a cross made by Prof. John Craig, Secretary of the American Pomological Society, when Horticulturist of the Central Experimental Farm, Ot-



Same Tree Correctly Pruned

tawa, between McMahan female and Scott Winter male. These varieties appear to have distinct points of superiority over their parents, but will have to be tested longer. From 3,000 seedlings of Russian apples, fifty-nine

else that is worthy of cultivation, the best of attention will bring the greatest satisfaction. "I have no luck with sweet peas," is a common saying; but when the truth is known, "I have no knowledge of sweet peas" would have been nearer correct.

Taking it for granted, then, that we want quality rather than quantity, the methods of cultivation must be carefully studied. Conditions are so various that rules which might be advantageously applied in one locality may not prove effective in another. Nevertheless, certain principles govern the ideal culture of sweet peas everywhere, and the successful adaptation of these principles must be left entirely to the grower. The first essentials are seed, site and soil.

Seed should be obtained from specialists. A ten-cent package from your nearest grocer is not only disappointing, but decidedly absurd. Because a thing is cheap, it does not follow that it is first-class. I have bought seeds that averaged as high as three cents a piece, and I have yet to be disappointed with these high-priced varieties. One should add the very latest novelties to his collection if he wishes to keep up with the progress of sweet pea culture. Not only this, but he should strive to be an

originator of something new and to this purpose, watch for sports and let the best of them go to seed. Besides, he should study and practise hybridization and cross-fertilization, with a view to improving old favorites.

NOVELTIES WORTH GROWING

Among the novelties for this year, I would recommend Burpee's White



Exhibit at Last Convention of Northwest Fruit Growers' Association

See Page ix.

Spencer, pure white; Burpee's Primrose Spencer, the deepest yellow yet produced; and Burpee's Apple Blossom Spencer, the most beautiful combination of pink and rose imaginable, all of the orchid-flowering class. George Herbert is a beautiful new red of the above class, and Mrs. Charles Mander is another of the class which might well be called "The Royal Purple Spencer." I have received from England, for my own garden, three new novelties of the orchid-flowering class, which promise to be very attractive. These are: "Enchantress, a delicate pink with a deep rose edge; Nell Gwynn, a lovely soft salmon, slightly suffused with deep cream, the base of standard having quite a gold blotch; and Olive Ruffle, a bright rosy salmon of very distinct shade.

Among the grandiflora reds there is no finer variety than King Edward VII. Then there are: Mrs. Walter Wright, a beautiful mauve; Othello, a good maroon; and Duke of Westminster, a very deep blue. There are many other fine varieties, but one should by all means have those I have named among their collection.

THE BEST LOCATION

Having secured the very best seed, select a sunny site, so that the rows may

run north and south. An objection has been offered to this position of the rows, on the ground that when gathering flowers in the morning, the eastern sunlight is directly in the eyes, and in the afternoon, the western sunlight will be just as troublesome. But when we consider that vines growing in rows running east and west are drawn more toward the sun, and the work of training and supporting them is consequently greater, we can look with favor upon the rows running north and south, even if we have to wear colored glasses when gathering the flowers.

If planting on a large scale, the rows should be at least four feet apart. But I am writing more particularly to those who have only small grounds and grow sweet peas for their own immediate pleasure. It may be that you have a small city garden and are compelled to grow sweet peas near the fence. If so, make the rows eighteen inches away from the fence, and construct a frame support, which will enable you to use string. I have always used string, and heartily disapprove of wire. With string, you can make a much neater support, and will have no trouble to reach through when gathering flowers. Painting your fence and woodwork green makes a very pleasing effect. Keeping the support eighteen inches from the fence from top to bottom will permit air to pass about the peas, and prevent them drying out or burning.

KIND AND TREATMENT OF SOIL.

The soil most suitable for sweet peas is a clayey loam. My soil was originally heavy clay. I dug out a part of it and mixed sharp sand with what was left, until now it breaks up very easily. Last fall I added a large quantity of sandy loam and worked it in with well-rotted cow manure, digging it over perhaps a dozen times before the frost set in. I always turn my soil over many times during the fall. This allows it to come to the open air and sweeten. It is also a good plan to cover with good hardwood ashes just before the fall rains begin, so that potash may leach in. I have noticed that when I used ashes in this way, mixed with about equal quantities of air-slacked lime, the earth is freed from cut-worms. If your soil is light and sandy, add equal parts of clayey loam and plenty of well-rotted cow manure.

A very wet soil is not good for sweet peas. It has a tendency to sour, and nothing will grow in it. If you care to test your soil to discover if it is sour or not, take a handful of it and put it into a tin of water. Mix it up thoroughly, and let stand for about an hour. Then take a piece of blue litmus paper, which any druggist will supply you, and place it in the mixture. If it turns pink, your earth is sour and air-slacked lime should

be added to neutralize it. Sweet peas require an abundance of water, but they do not like "wet feet," that is to say, water must never be allowed to stand about the roots in little pools; this will cause them to rot, or "damp off."

Sweet peas should never be planted two successive years in the same soil. You can plant in the same locality, but to get the best results you should change the soil. I have tried several methods of planting, but have found a trench system the most satisfactory. I dig a trench ten inches deep, the width of a spade, removing the earth as I would for a drain. Then I cover the bottom of the trench with about four inches of well-rotted horse manure (purposely avoiding cow manure) and tramp it down well. On this, I place two inches of finely-pulverized earth, upon which I sow my seed in two rows, three inches apart, and the seeds placed alternately three inches apart, thus—

This method will give plenty of room for each root, and enable you to place your strings between the two rows. I always use a line stretched along the trench, as a guide to keep the seed rows straight when planting. Now cover the seeds with one inch of finely pulverized soil, and over this put one inch of pulverized sheep manure, if you can get it, or well-rotted horse manure, if nothing better can be obtained, or a thin covering of fine bone meal.

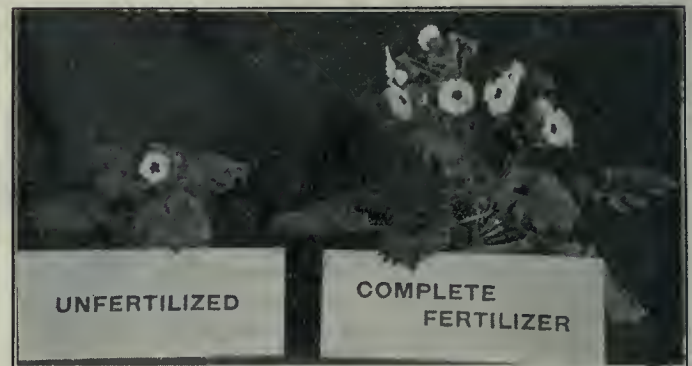
Fill in the trench until a little higher than the walls, so that during heavy showers, water will not stand upon it. The seeds will now be four inches deep, thus insuring coolness and plenty of moisture. Planting time should be as early as you can possibly work the soil. With seeds so deep, there will be no danger of frost blighting them. The roots strike down and provide for strong healthy growths. From this method, last year, I had King Edward VII nearly eleven feet high. They were planted on April 18, began blooming on July 15, and continued to throw fine, large flowers until October 23, when the frost killed them. I never raised more thrifty sweet peas, and I shall plant thus until I learn a better method.

I have made a practice of giving sweet peas a mulch of grass cuttings to keep the roots cool and moist. When this is done it is not necessary to water so often. But I usually spray my vines every evening for a few minutes, after they begin to bloom, to keep off the red spider. I also make a practice of treating them to a good soaking of liquid

manure once a week. I do not put this directly upon the vines, but make a small gutter at the side of the row and pour the liquid manure into it. This soaks in about the roots and is more effectual than if put directly upon the row. Always replace the grass mulch after each application of the liquid manure.

INSECTS AND DISEASES

The only insects that trouble sweet peas are the red spider and the green aphid or "pea louse." These can be kept off by spraying with a strong solution of salt, say a good handful in about a gallon of water. The sweet pea blight is a disease which causes the vines to turn yellow and die. This is due to dampness. Too much moisture in the soil should be carefully avoided. When vines turn yellow, stop watering, and remove the grass mulch for a while. A sprinkling of wood ashes is often a very good treatment in such cases.



Effect of Fertilizers on Primulas
See next page

Flowers should be gathered in the morning, and placed in water as soon as possible. Keep the vines clear of faded flowers and let none go to seed, except on a few vines that you have specially selected. Cutting vines back is also a good method of improving the bloom. A careful observation every morning will teach more lessons than articles of this kind, and will afford you greater pleasure and success.

An easy bulb to handle is the Chinese sacred lily, either in water or in soil. It will bloom in six weeks.

Achillea Ptarmica.—The achilleas or yarrows are plants of easy culture. They are ornamental both in flower and foliage. Variety "The Pearl" is the best for a display in the garden and for cutting. This variety continues blooming all summer and fall if planted on a damp piece of ground. Flowers are pure white and double, and are produced in the greatest profusion, growing to about three feet high.—Roderick Cameron, Queen Victoria Park, Niagara Falls, Ont.

Manuring Flowers and Pot Plants

Otto Herold, Waterloo, Ontario

EVERYWHERE market gardeners are awakening to the fact that artificial fertilizers must be used in order to reap the largest possible harvest from their fields. By a judicious application of plant food to the potato or vegetable crop, it is a common occurrence to obtain twice and even four times the amount of money invested.

For a long time people thought that flowers and pot plants did not require any artificial fertilizer, but experiments have discredited this belief. As a rule, pot plants, shortly after being transplanted, are somewhat retarded in growth and lose their fresh and brilliant color. The reasons given for this are, first, because the nourishment contained in the small quantity of soil in the pot is soon exhausted and partially leached out by the frequent waterings; and, secondly, because the amateur gardener is unable often to procure first-class potting soil.

Most people have their flower garden on the same piece of land year after year; consequently it is no wonder that the soil is gradually exhausted of its fertility, and a deficiency of available plant food is the outcome. In many cases the required elements are not replaced when stable manure is applied, because the nitrogen is in excess in proportion to the amount of phosphoric acid and potash present, thus causing a rank, leafy growth with only a few flowers.

One will be surprised at the wonderful results accruing from a judicious and economical application of potash, phosphoric acid, and nitrogen to pot plants

and flowers. Ordinary fertilizers, as used for field purposes, may be applied with a fair degree of success, but owing partially to their insolubility they should be mixed with a top soil before potting the plants. It is much better to purchase the separate ingredients and the following amounts have been found by carefully carried-out experiments to suit the requirements of most garden soils. Per perch: Superphosphate, three pounds; sulphate of potash, one and a half pounds; sulphate of ammonia, one and a half pounds, or nitrate of soda, two pounds.

As has been previously stated, these contain very small quantities of the necessary ingredients in an available form, and though good results may have followed their use, yet for pot plants it is much preferable to obtain the highly concentrated chemicals, as it is generally necessary to apply in a liquid form. The following mixtures are recommended: one part nitrate of potash (salt-petre); two parts superphosphate, eighteen to twenty per cent.; two parts sulphate of ammonia, or two parts nitrate of soda. Dissolve half an ounce of the mixture in one gallon of water and apply say once a week, being careful not to allow the liquid to come in direct contact with the foliage.

In the minds of many people a fertilizer is a term usually associated with an unpleasant and disagreeable smell, similar to guano or animal refuse; but this mixture is odorless, clean and very convenient to handle.

The accompanying photographs of flowers are representative experiments that we conducted last season. The results are so pronounced that no further comments are necessary. Suffice it is to say that the plants fertilized produced larger and finer flowers of a much healthier growth.

There is no surer way of one becoming convinced of the great value of artificial fertilizers in manuring than by making a small experiment with flowers in one's own garden and also with pot



The Result of Fertilizer Experiment with Cyclamen

plants. Knowledge gained in this manner will be of inestimable value.

Varieties of Euonymus Worth Growing*

Roderick Cameron, Niagara Falls, Ontario

EUONYMUS radicans and several other variegated forms of *Euonymus* are quite hardy here. I find, however, that they are the better of some protection from the sun in spring when frozen, otherwise the foliage will burn badly. The plants should be planted on the north side of the wall or fence. They will do grandly among large rocks, to cover stumps or climb up bare trunks of trees for three or four feet. *Euonymus linearis* may be used to good advantage for the same purpose. This one makes a very neat vine against a verandah pillar. It is quite hardy

and fruits early in the fall. *Euonymus Japonicus radicans* and the several variegated forms make grand borders if planted around beds of evergreens.

The above varieties, as well as the common bearberry, *Arctostaphylos uva-ursi*, periwinkle, *Vinca minor*, along with our native *Euonymus Americanus*, variety *obovatus*, make good subjects to plant in shaded places, under trees where grass will not grow. There are many such spots in our parks and private grounds. On the other hand, these plants will accommodate themselves just as well to be planted on dry, sloping banks. For either purpose, place some rocks among the plants. The rocks will catch and retain the leaves about the plants to

protect them until spring, when they can be taken away. It is at this time that the plants will show themselves to good advantage, making such spots green at once.

I have in my mind, at this moment, the front of the Government House grounds in Toronto, facing on King Street. I question if there is a worse-looking spot to-day on any private grounds in Canada, where they should be the best. I do not want to be misunderstood. I mean only the front facing King Street, a wide, bare stretch of ground and not a green leaf or blade of grass to be seen there.

There are a number of grand deciduous varieties of *Euonymus*, spindle tree,

*The creeping euonymus, *Euonymus radicans*, described in the January Issue, is hardy in Canada only near Niagara Falls and in the favored districts of British Columbia.

strawberry tree or burning bush. I find the best to be *Euonymus latifolius*. The foliage of this one is the best of all. The fruit is the largest and the earliest; therefore, done before winter comes. The brightest during the winter and one that attracts the attention of all passers-by is our American variety, *Euonymus atropurpureus*. The best evergreen varieties for tubs are as follows: *E. Japonicus*, *E. argenteo varie-*

gatus, the leaves are edged and marked white, one of the best; *E. aurea variegatus*, leaves blotched yellow; *E. albo variegatus*, leaves with white margins; *E. medio-pictus*, leaves with a yellow blotch in the middle; *E. aureus*, golden leaves; *E. Duc d'Anjou*, leaves large and a bright green, variegated with yellow and green in the middle.

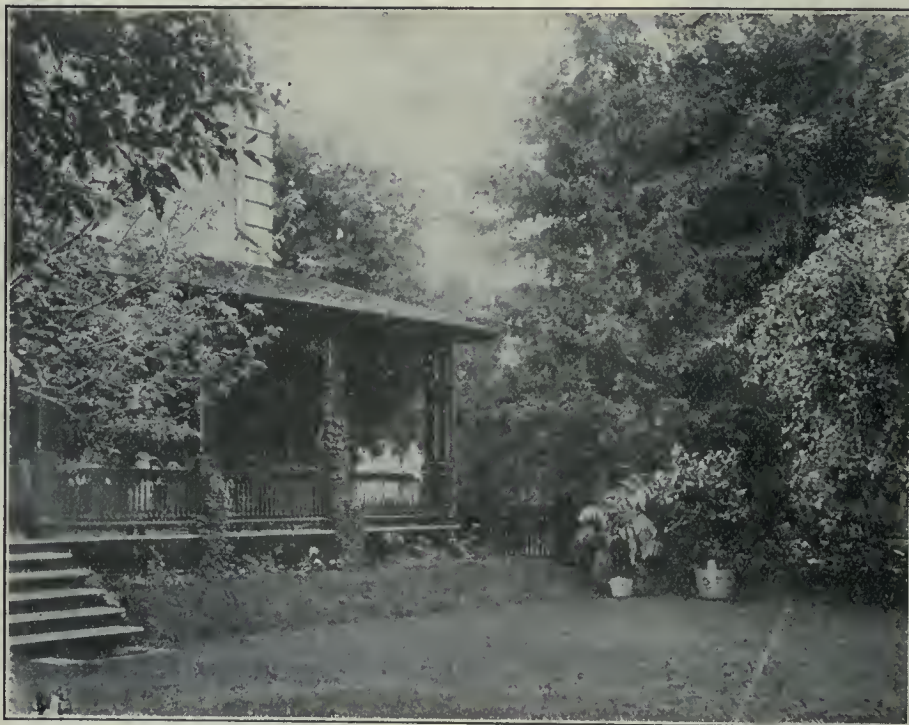
All the *Euonymus* are easily grown from cuttings. They are among the

very best ornamental plants. The evergreens are very showy and useful plants for tubs. I grow them in wire baskets. I plant them out of doors during the summer, basket and all. When the cold weather comes in the fall, I take the plants up and plant them again in a cold storage cellar for the purpose, where these and many other plants have stood seventeen degrees of frost without apparent injury.

February Hints for Amateurs

NOT much can be accomplished this month in the actual growing of plants, but much can be done in planning and preparing for the sea-

son for bedding out by starting the seeds now in the window. If you do not start them yourself, you will have to buy from the florist. Seeds of



A Beautiful Garden Effect and Lawn Worth Working For

Residence of Mr. A. Alexander, Hamilton, Ont.

son that is to come. Seed and plant catalogs should be secured. Some of them are reviewed briefly in another column of this issue. These catalogs are of interest, not only for the lists of varieties that they contain, but also for much valuable cultural advice. Look them over carefully and make your selections early. Acquaint yourself with the novelties that are offered and select a few of them for trial. While novelties are worth trying, stand by the old reliable varieties until you discover a novelty that has proved its worth.

SOW SEEDS IN FEBRUARY

Early summer flowers may be had in the conservatory, and plants in

lobelias, cockscomb, verbenas, double petunias, sweet sultan and the Vernon begonia may be sown in pots or boxes towards the end of the month. These will produce nice plants for hanging baskets and window boxes. Sowings for bedding-out may be made about the first of March. Early sweet peas may be had in the garden by sowing a few seeds now in pots or boxes for planting outside when the time comes.

Late in the month and after the first of March, seeds of beets, cauliflower, lettuce, string beans, and so forth, may be started in the window. When large enough, they should be transplanted to a cold frame.

THE WINDOW GARDEN

The successful winter culture of window plants depends, in a large measure, on the window itself. A very high temperature at mid-day and a low temperature at night is not beneficial to the growth of plants, and often induces the presence of insect pests and fungous diseases. An ordinary house temperature of about 50 to 55 degrees at night and 60 to 70 degrees during the day, will furnish the most desirable conditions for most window plants.

A moist atmosphere also is desirable but it is often difficult to obtain, as the surroundings are not adapted to using much water. The difficulty may be overcome somewhat, however, by spraying or sprinkling the foliage of the plants on fine, sunny days. If this is not practicable, sponging the leaves will answer the purpose. Once in two weeks is often enough for this sprinkling or sponging. Hairy-leaved plants, such as the Rex begonia, should not be sponged.

A close watch should be kept for insect pests. Prevent their appearance by sprinkling or sponging the foliage as already mentioned, and by keeping the plants healthy and growing well.

Towards the end of the month, fuchsias that have been resting all winter may be started into growth. If it is desired to start the old plants into bloom once more, bring them to the light and prune back slightly so as to make a shapely plant. Apply water gradually. When new shoots or leaves make their appearance, repot the plants into the same sized pots, but in new soil, composed of two parts of rich, light loam, and one part each of sand and leaf soil, mixed well together. Give plenty of drainage. Water well at the time of potting. New plants may be propagated by taking the young shoots that appear and using them as cuttings to be started in sand.

Fall propagated geraniums should be shifted into three and one-half

inch pots, and potted firmly in rather heavy soil. Cuttings may be taken from these plants in from three to five weeks.

A few tuberous-rooted begonias may be put in moss or sand to start them off before potting. They are easily handled and give great satisfaction.

FORCING TWIGS AND BRANCHES

Much pleasure and interest can be had by forcing into bloom a few twigs and branches in the window garden. Cut a few twigs of forsythia, Japanese quince, lilac, dogwood, maple, elm, willow, alder and the various fruits, such as pear, apple, peach, plum,

cherry or currants. Put them in vases of water in a sunny window. For the larger twigs and branches, large jars are better than vases. Change the water every three or four days, and keep it sweet by placing a small piece of charcoal in the jar. The twigs must be cut clean and slanting.

How a Horticultural Society May Succeed*

Rev. A. H. Scott, M.A., Perth, Ontario

HOW to expend to the best advantage the funds at the disposal of horticulture in Ontario, is a subject which, as it appears to me, no one person should assume to treat exhaustively. We know in part. Conditions vary. Some of our money is in the local treasuries. Some of it is in the hands of the Government. Some of it is in private hands, ready for use when friends of the garden and appreciators of the soil shall have influence sufficient to open the doors for a larger knowledge of nature's operations. But if we are disposed to listen to what others have done, and if others will think well of our well-meant endeavors; moreover, if with good judgment and high purpose a growing number of us will suggest, and follow up suggestions with patient endeavor, there is no reason why this favored province, in this western world, should not soon be a great deal more like a well-kept garden than it is to-day.

Let me proceed through a concrete instance. The horticultural society of Perth is desirous of being a helper in the horticultural cause of Canada. You know of that phase in our make-up which disposes us to think well of our own. Now, in my spot in Ontario, we have a pride in clean streets. We glory in overhanging trees. We advocate well-kept lawns and good gardens. About our premises in summer you may notice the product of intelligent cultivation, and if you visit us in winter we will show you something that is rewarding in the indoor culture. A part of our pleasure

is the result, I believe, of a certain expenditure for the bulbs and shrubs that reach us through the Perth Horticultural Society.

in some measure by attachment to Him through whose grace and power the dead are to rise again; in some measure, too, out of respect for the memory of the



The City Beautiful Demands the Adornment of Church Surroundings
The cut illustrates the garden of St. Sulpice, Montreal.

It soon became impressed upon our members that they were scarcely justifying their horticultural existence by confining that attention to the cultivation of those niceties which were largely for their own personal or household use. So they looked about and attention was fixed upon the places where many pioneers in the Perth district were sleeping. A new piece of land had been purchased for a general cemetery, and when the community began to bury its dead in the large place, the old grounds came to be neglected. Prompted, no doubt

departed, and in great measure by that sense of propriety which is shocked to see the stone wall of a sacred place broken down, and mounds that should be putting forth green grass grown over with nettles, our society contributed out of its own funds and added to those through personal solicitation among the townspeople, with the result that the old burial grounds belonging to the Presbyterians, Anglicans, Methodists and Roman Catholics, have been made new. Perhaps no expenditure has given more satisfaction to our members and to

* A portion of an address given at last convention of the Ontario Horticultural Association.

our citizens than this upon God's Acre.

Some of the funds belonging to our society have been expended in various ways along the line of civic improvement. Ornamentation of public buildings with blooming boxes and hanging baskets has been done. The society has helped to prepare the way for beautifying the grounds about the place, which is conspicuous when we are leaving our homes and returning to them again at the season of travel. Our most recent service was one in which we were associated and assisted by one of the departments of the Dominion Government. A waterway leads from our town to the Rideau, which again opens on the one side to the St. Lawrence River and on the other to the Ottawa. The basin at our end is the head of navigation. The banks were unkempt. But now the government of Canada and the Perth Horticultural Society, having joined hands in the enterprise, there is a new order of things since the banks of the Tay were subjected to the skill and culture of the landscape decorator.

These are sample instances of what has been done in a single place. Expenditures for kindred purposes in places where other conditions obtain would seem to be the advantage of the localities and in keeping with the right trend of horticultural society endeavor.

Taking a wider outlook it appears to me that open doors are presented to us in the three following directions:

1. We should be free to expend money to bring in men and women who are capable of making the public platform

calling is time-honored and respecting, but it is too bad, inasmuch as right gardening is intellectual employment, that so many fine acres should be locked up because so many operators on the soil are uninitiated and uninformed. There is a power in the living voice of an interested personality who will provoke enquiries from the platform and send audiences away with a new charm for the most beautiful, most useful and most noble employment of man.

2. There was never a time in the history of Canada when there was so significant a call to furnish our people with reliable and inspiring horticultural matter through the printed page as that which we have come to just now. The intelligence of the Canadian, I believe, forbids the success of any venture in publication that is characterized by what is scrappy or second-hand. There is a great deal that is hopeful in the tone and talent which we read through some of our Canadian journals that devote themselves wholly or partially to the agricultural or horticultural cause. May these broaden and prosper! I, for one, have great expectations of our CANADIAN HORTICULTURIST. All honor to those in the earlier days who brought it up to what it is to-day. But from this on everything should be done that lies in the power of our officials and membership to enlarge its constituency, to brighten its articles, to fortify its editors, and to furnish for our people in this part of the world the ripest and best in horticulture. We want this magazine to be first in its line, and I believe we have

opportunity to express my own concern, as well as the concern of other thinking men, if the present school books of the province are to be changed, that the new ones should have a conspicuous place for the first enterprise of the nation. Military training in the public schools in the Maritime Provinces is spoken of as part of a plan about to be executed. If in the Maritime Provinces, why not in all the provinces? If boys and girls in Nova Scotia are to have special instruction in the science of killing men, let Ontario, and the sister provinces on to the Pacific Ocean, be made proficient in it as well, the prayer going up all the while that we may never be called to put it into exercise.

Next to the work of saving men's souls in Canada, I can conceive of no more important work to be done during this generation than the training of our children into appreciation of the Creator's gift in the soil, and in the best use of that gift both for the development of a sturdy Canadian manhood, and for the enlightened projection of our country's chief resource. We receive from the government of the province a part of our wherewith for promoting the horticultural cause. We look for the utilization of some of the moneys contributed by the Province of Ontario exchequer in laying new and improved foundations with our sons and daughters by means of the very best procurable lessons in the new series. It may be too early to go into detail. But if a forecast would be pertinent, it may not be inopportune to write here the expectation that when the new series of readers for public schools of the province shall have taken the place of those which have served their day, there will be afforded scope for definite and rewarding considerations of such fundamentals in the soil as drainage and tillage, as clover and fertilizer; and that the right association will be set forth for the twentieth century citizenship in this Canadian realm between a bed of asparagus and health, between a perennial border and happiness, between the "chief end of man" and a "watered garden."

I find many useful and instructive articles in THE HORTICULTURIST.—H. F. Leonard, City Clerk, Brantford.

Cherry trees need but little pruning after the young tree has been properly formed.

Renovating measures may be said to assist in the judicious removal of feeble, decaying tops and branches and in encouraging fresh root action.

To have satisfactory results in the flower garden, make your plans now. Do not plan for more than you can easily do. Quality is of more importance than quantity.



Countless Effects May Be Produced in Landscape Art

a disseminating place for healthy horticultural information. Dr. L. H. Bailey tells of an owner of land who, not knowing reasons for anything, has no inspiration, and goes fishing. The fisherman's

the conditions in Canada for making it that.

3. At the risk of being less definite than I should like to be in this concluding reference, I take advantage of this

Planting and Managing Hydrangeas

J. H. Thomson, Toronto

THERE is probably no flowering shrub grown in Canada that gives such universal satisfaction, pleasure and delight, as the outdoor *Hydrangea paniculata grandiflora*. While lilacs, syringas, spiræas, and other shrubs

prepared and rich. Every spring the plants should be severely pruned back, as the new blossoms always come on the tips of that season's growth. For this reason, it should be spurred back, leaving only a couple of buds on last season's



A Nice Group of Hydrangeas—One Season's Growth.
In front of verandah last summer at residence of Mr. J. H. Thomson, Toronto

of this description are beautiful in their season, they last only a very short time. Hydrangeas, on the other hand, do not flower until midsummer, when no other shrubs are in bloom: It starts to form its blossom about the latter part of July, and gradually increases in size and beauty throughout August, and attaining its greatest perfection about the first or middle of September, and lasts right through until cut off by the frost in October. It commences a beautiful creamy white, which, as the season advances, deepens into a rosy pink.

The flowers are formed on the end of the season's growth, and come in immense panicles which, in well-trained and cultivated plants, sometimes run eight to ten inches in length, making it the most handsome and showy of all flowering shrubs. The blossoms, if cut before frost, can be used with great effect for interior decorations, and will last and hold their color for some time.

This shrub is planted to greatest effect in mass, being used for borders, beds or hedges. One of the most popular ways of planting is to plant in mass at the base of a verandah, as shown in the accompanying illustration, which shows one season's growth of shrubs planted twelve inches apart.

The hydrangea is perfectly hardy and easy to grow, but will attain a more luxuriant growth if the ground is well

wood, which would shorten them an inch or two in length. This will allow the whole strength of the root to go into only a few branches, which, having the whole strength of the plant, will attain a large size, and consequently form immense blossoms, which would be many times the size of the small flowers which would form if the plant were not pruned.

Care should be exercised in watering with hose or watering can, to see that the water is not allowed to go on the leaves as they are apt to rust. In the growing season, however, the hydrangea needs lots of water, but this should be sprinkled on below so that it will not come in contact with leaves in any way.

Plants can be secured from any reliable nurseryman for a reasonable sum. Two years old is the best age to plant. Before setting out, prune back with a sharp knife or pruning shears as mentioned above.

Canadian Peaches

W. T. Macoun, Ottawa

From the fact that peaches are propagated on peach stocks grown from stones of cultivated varieties of peaches more good seedlings have been noted than of pears and plums, as if the budded variety dies the stock will often grow up and produce fruit. Only three varieties, however, need be specially mentioned. These are the Banner,

Fitzgerald, and Tyhurst, the descriptions of which are taken from "The Fruits of Ontario":

BANNER

Banner is a popular late market peach among the Essex fruit growers. Origin, Essex County, Ont.; first fruited on a large scale in 1903. Tree, hardy and productive; fruit, medium to large, round; color, yellow with red cheek, attractive; flesh, yellow; texture, fine grained, moderately juicy; flavor, rich; quality, good; value, market first class; season, early October.

FITZGERALD

Since the Early Crawford has been such a popular peach both for home use and market, every new introduction of a variety which is of the same class has been welcomed by the public, especially where it may be used to extend the season. The Fitzgerald is not so large as the Early Crawford, but to many, the flavor is finer for dessert, and its season is a trifle later. Like the latter, it is too tender for very long shipments. Origin, in the garden of Mr. Fitzgerald, Oakville, Ont., about 1805; tree hardy, healthy, and productive; fruit, medium to large, roundish ovate; color, bright yellow, covered with deep red; down, moderate in quality; cavity, broad and deep; apex, a small point in a slightly depressed basin; suture, distinct; stone, free; flesh, yellow, with red at pit; texture, tender and juicy; flavor, excellent; quality, dessert good; value, home market first class; season, early to mid-September in Niagara district; adaptation, one of the hardiest varieties and successfully grown in Georgian Bay district.

TYHURST

Tyhurst is a very attractive golden yellow peach; considered a profitable variety for the commercial orchard. After fruiting it several years at our Maplehurst station, we think its value has been somewhat over-estimated. Origin, a seedling raised by Mr. Tyhurst, of Leamington, Essex County. This gentleman was so pleased with the peach that he planted nearly his whole farm with trees grown from its pits, and made considerable money out of his venture. Tree, moderately vigorous, quite productive, fruit is inclined to drop as soon as ripe; fruit, medium, ovate; suture, distinct on one side, terminating in a small black sharp point; color, deep yellow, with tinge of red in the sun; skin, separates easily from the flesh; flesh, free; color, pale yellow; texture, very tender, fine grained melting, juicy; flavor, excellent; quality, dessert very good to best, cooking very good; value, home market first class; distant market, second class because too tender; season, mid-September.

Growing Asparagus Ferns From Seed

AMONG the most charming and beautiful of foliage plants are the asparagus ferns. The most popular varieties are *Asparagus plumosus nanus* and *Asparagus sprengeri*. Plants of either species start readily from seed.

Use a light, spongy soil. Leaf mould is excellent but, if not obtainable, soil taken from around an old straw pile in the barnyard will do. The soil should spring back slightly when pressed.

Before planting the seed, soak them in warm water for twenty-four hours. Start them in pots or a box. As soon as the first fronds of the plants are two inches high, they should be transplanted to small pots. They will transplant more readily without injury if the soil is allowed to dry slightly before handling.

The pots should be well-drained, with charcoal if possible, or pieces of a broken flower pot, as it will keep the soil sweet. When transplanting, the soil should be pressed firmly about the roots and watered sufficient to moisten all the soil in the pots. Shade the pots for a day or two. Four-inch pots should be used when it is again necessary to shift the plants. When this is required, allow the soil to dry out a little, but not entirely, and it will be a comparatively

easy matter to perform the operation. Run a knife around the inside of the pot to loosen the soil. Turn the pot upside down, one hand covering the soil and the other hand grasping the bottom of the pot, and by firmly tapping against some hard surface, the soil is easily removed in a compact lump. After the drainage material has been placed in the bottom of the pot, add enough soil to bring the crown of the plant level with the top of the pot, add fresh soil around and press firmly, water as before, and keep the plants shaded for a few days.

While constant shade is unnecessary, neither of the varieties mentioned should be placed in a warm, sunny location. Extreme heat retards their growth and sometimes causes them to droop and die. Keep the plants fresh and healthy by spraying with cold water once a week. A whisk broom may be used for the purpose if a plant sprayer is not available.

A few of these plants will be welcomed in the home. They are dainty in the sitting-room. Cut fronds make an exquisite finish for a bouquet of flowers or for floral decorations on the table. The foliage is useful for all decorative purposes.

the leaves, they were better and there were no brown tints.

In summer, the beds close to the glass turned with the heat and in the winter, they get cold from the glass. He decided to raise the houses and the new range he is building will be kept high. He has not yet determined on the width of the houses, but he thinks that he will have them fifty feet, single span.

Something was said about hot water and steam heating. Hot water was employed all through this plant, but the new carnation houses the owner put up has a steam plant and separate power house. He now intends to have all his buildings heated by steam. He must have some very strong reason for that because he has a first-class hot water plant. He tried experiments with movable sash houses, and he says it did not pay him to do it.

The big point in connection with greenhouse work is labor. With the idea of building large houses comes the idea of cultivating the inside of the house with horsepower. In North Wales there is a greenhouse that covers two acres of ground, and I see no reason why it could not be cultivated the same as two acres of fields. It is simply necessary to have the door made large enough to drive a team in. A good many growers are doing this and cultivating just the same as they would in the field. There is only one thing in the road and that is the heating pipes in the roof overhead and on the side walls. It would not do to have these pipes too near the top. If placed about seven feet from the ground, the ground would be clear, and in a large house the heat would be practically on the lower strata.

Greenhouse Construction*

R. W. King, Toronto

IF you want to put in steam heat, don't go to a novice. Go to some one who understands steam heating if you want to ensure success. It is well enough to get up a design, and you may think you have the thing first rate, but it requires time and experience to find whether or not it is going to work.

We have had a considerable discussion on ridge and furrow houses. The ridge and furrow house is a serious problem in locations like Ottawa, Montreal and Edmonton, on account of the snow getting on the roof. It is only of late years that it has been thought practicable to put up ridge and furrow houses in the neighborhood of Montreal. It has been rendered practical by the adoption of iron gutters. The snow does not lie on the iron gutter, but will melt away. By placing a hot pipe each side of the gutter, you can bring the snow down very fast. If a man is near a city where land is valuable, he cannot afford to put up separate houses.

One of the largest vegetable growers in Canada, near Montreal, has a new range of connected houses and in spite of the fact that they have stood two

seasons, he is nervous. When they have a large snowfall, he is afraid his houses will not stand, and he has props ready in case of the failure of the roof. His present idea is to build a separate span, and he wants a house forty to fifty feet wide. He has sixty acres of ground and cultivates the ground between the houses. Thus he uses more land than the glass covers. He grows 500,000 heads of lettuce and gets about four crops a year. He has about 75,000 roots of rhubarb.

These new houses were put up for the purpose of raising carnations, but he now grows lettuce in them, and finds that the lettuce does much better in this house than when he had it in the old. His old houses were fifty feet wide and the glass started one or two feet from the ground, and there was a great deal of timber in the roof. He found that the lighter the houses were constructed, the better stock he grew. He is so much impressed with the improvement in the higher houses that he is going to use them. One fault he found was that, when the lettuce was close to the glass, the leaves turned brown on the edges, but in the centre of the house, where the glass was high and away up above

Sowing Tomato Seeds

Angus McInnis, London, Ontario

There are different ways in which tomato seeds may be started. Those for early use I plant in the greenhouse.

Take any box about three inches deep. To the depth of an inch place rich earth, then fill to within half an inch from the top with poorer earth. Pack very firmly with a brick or block of wood and it is ready for the seed, which must be sown as evenly as possible.

Sift clean sand over the seed such as is used for plastering or lake shore sand. My reason for this is that the plants come up better. When the seedlings are coming up they often push the earth up in great bunches and, should the weather change at this point, the young plants are liable to be chilled and die while under the earth. When coming up through sand, it falls down around the stem of the plant, especially when watered. I always use water which has had the chill taken off, as cold water keeps them back. In about four or five weeks I transplant the seedlings about three inches apart each way.

*A portion of the discussion on Mr. J. D. Fraser's paper that was read at the last convention of the Ontario Vegetable Growers' Association, and published in the January issue of THE CANADIAN HORTICULTURIST.

Growing Celery for Profit

R. J. Bushell, Williamsville, Ontario

A BRIEF account of my method of growing early celery may be of interest to the readers of THE CANADIAN HORTICULTURIST. Beginning about the first of March, a hotbed is prepared. Care should be taken that too much manure is not under the bed. Excessive heat is not required to germinate

put the earth on a week before sowing (to the depth of six inches) to allow weed seeds to germinate. After the celery seeds are sown, I shade the glass with some covering for about a week. Then I remove the covering and air the bed as much as possibly can be done at that season of the year.

two inches, I transplant into a fairly warm bed, allowing between 300 and 400 for each sash. By May 24 the plants are ready for the field.

My soil is a loamy one with a tendency to clay. To this I give a liberal dressing of cow manure the fall previous to planting. In the spring I find the manure is well incorporated with the soil. I do not trench my celery, but plant on the level in rows three feet apart, and plants six inches apart in the rows. Two hours before removing the plants from the hotbed, I water freely and remove the plants with a good ball of earth to each root. I press this firmly in my hand. By so doing, plants receive but very little set-back.

I start to set my plants out in the field about three o'clock in the afternoon and continue till dark, which gives the plants a chance to take hold during the night, and they are better able to resist the sun of the following day. If the weather is dry, I water before and after planting, and do so every three days till the plants are well under way.

When the plants are about a foot high, I give a light cultivating. After which, I remove all the weeds between them and continue cultivating every fortnight until the plants are high enough for bleaching (which should be about the latter part of July) for which I use boards from twelve to fifteen inches high. The crop should be ready for market about the middle of August.

My late crop for winter receives the same treatment as the preceding, but, of course, the seed is sown later and the plants set out in the field later. Give particular attention to seed selection.



First Prize Celery at Kingston Horticultural Exhibition

It was grown by Mr. Bushell. Note yard-stick at bottom.

celery seed. It is better to have the seed germinate slowly, as it gives a stouter plant and one less liable to dampen off.

About two weeks after the hotbed is first started, I sow the seed. I usually

I seldom water the bed. The earth is usually moist enough until the second leaf is formed. Too much water, excessive heat and insufficient ventilation are causes for damping off. After the plants have attained a growth of about

The Fruit Lands of the Okanagan

The third of a series of articles on fruit growing in British Columbia, written by a staff representative of The Canadian Horticulturist, who recently visited the leading fruit districts of that province.

THE name, the "Okanagan Valley," is applied usually to the land lying south of Sicamous Jet. (on the main line of the C.P.R.), bordering on the Spallumcheen River, and the land on both sides of Okanagan Lake as far south as Penticton. Such well-known fruit sections as Enderby, Armstrong, Vernon, Coldstream Ranch, Kelowna, Peachland, Summerland, and Penticton, are situated in this district.

It has been only during the past few years that land in this district has become extensively known. Fruit has been grown in some of these sections for the past fifteen years, but it is only

recently that proper attention has been given to its development. The nature of the soil varies from a light clay loam at the northern end of the valley to a sandy loam and silt at the southern end.

There is a marked difference in the rainfall in different parts of the valley. Irrigation is seldom required on the land lying between Sicamous and Vernon. The nature of the soil is such that it retains the moisture longer than the more sandy land at the lower end of the valley where irrigation is necessary.

TRANSPORTATION FACILITIES

The transportation of the fruit is by

the Canadian Pacific Railway. Two steamers, the *Okanagan* and the *Aberdeen* (the former built this year), owned by the C.P.R. Co., give a daily service during the summer from Penticton to Okanagan Landing and return, calling at Summerland, Peachland, Gellatley, Kelowna and other ports. The *Aberdeen* is used mostly for freight and makes irregular trips as business requires. At Okanagan Landing the fruit is transferred to C.P.R. fruit cars, that are placed on the wharf beside the steamers; from Okanagan Landing the fruit cars are taken on fast trains through Vernon and Armstrong up to the

main line, with which connections are made at Sicamous Jct. From that point the cars make quick time to either the coast or northwest points.

Several methods of improving the service are under consideration by the railway companies. One is the sending of the cars on barges as far as Kelowna, which would permit loading at that point and do away with breaking bulk until the cars' destination is reached. Another is the extension of the C.P.R. from Midway to the lower end of Okanagan Lake. Still another was mentioned to our representative when in Penticton. The Great Northern Railway is extending its lines in the Similkameen Valley through Keremeos. It is from this point that prominent land owners are endeavoring to have the G.N.R. build a branch to Penticton. If this latter plan is carried out, it will give a shorter route to the coast and to the northwest for fruit grown in southern Okanagan districts, as the G.N.R. will ultimately serve both of those sections.

KINDS OF FRUITS GROWN

The Okanagan district as far south as Kelowna is becoming well known for the high quality of its apples and small fruits. South of this point—in Peachland, Summerland, and Penticton, the land is more suited for the growing of peaches and strawberries. The climate is a few degrees warmer, and the rainfall less than in the northern part of the valley. Large crops of peaches, reported of excellent quality, were harvested at Peachland during the past season.

CABBAGES AT ARMSTRONG

Vegetables are grown in large quantities, as was shown our representative while at Armstrong. One of the largest vegetable farms in the valley is known as Irish's Cabbage Farm. Mr. O. J.

of cabbages were planted this year, which produced 160 tons.

These were not all marketed at one time. Early cabbages were ready for sale in July and from that time until late in October there was a continual harvest. Large quantities of the cabbages maturing late were stored for winter shipping, which will be continued until next May. The cabbages were



Pruning on Coldstream Estate

planted close, which prevented the growth of monster specimens, and gave a more marketable size. The crop was averaging twenty tons to the acre, and brought \$18 to \$35 a ton. This year Mr. Irish utilized part of his land to grow potatoes; one acre produced fourteen tons, 140 pounds, which were sold for \$20 a ton. Mr. Irish expects to plant forty acres next year, which will necessitate the erection of a cold storage plant.

VERNON AND VICINITY

Our representative drove from Arm-

of Armstrong is controlled by The Kirton Orchard Co., of Winnipeg. The land appears to be well suited for the growing of apples and small fruits. On a farm adjoining this property is an orchard that is producing large quantities of apples. Grapes and walnuts are also grown to maturity. Irrigation is unnecessary as the rainfall is ample to afford all the moisture necessary for the crops. The land is covered with a light growth of timber and it is easily cleared.

Lakeview is another property well adapted to fruit growing, to which another addition has recently been made by Judge Spink's orchard. Part of this land is planted with fruit trees which will be in bearing next year. Mutrie & Mutrie, of Vernon, are subdividing their property, and should find no difficulty in disposing of it owing to its excellent location.

Vernon is beautifully situated where the roads radiate leading to the northern towns, to White Valley and Kelowna and to Grand Prairie and Kamloops. rich fruit and farming lands on every side. The town is the largest in the Okanagan Valley and is one of the largest shipping points for fruit in British Columbia. Most of the fruit grown in the vicinity is sold through the Farmers' Exchange, an association operating on similar lines to the co-operative associations of Ontario. Mr. T. G. Wanless, the secretary, believes there is a bright future for fruit growing in the district around Vernon. Mr. Wanless has consented to act as the special representative of THE CANADIAN HORTICULTURIST in the Vernon part of the valley.

The Coldstream Ranch, which is the largest orchard in British Columbia and one of the largest in Canada, is located five miles south of Vernon. The great success of this ranch and the high class of fruit produced has made the land surrounding Vernon in great demand by settlers.

At Okanagan Landing, connections are made for Kelowna. This town has been well termed the "Orchard City" of the Okanagan Valley. As the steamer approaches the wharf a fine view of the town and surrounding county is seen. Kelowna lies on bottom lands and is almost surrounded by orchards. One of the best known orchards is owned by W. R. Stirling; it is now in good bearing. Another orchard well worth mentioning is that owned by Mr. S. Sproule.

The opinion was expressed to our representative while in Kelowna that a large amount of the land in this district, which is mostly light loam, would grow good crops without irrigation under normal conditions. During an excessively dry summer would be the only time irrigation would be necessary. System-



Land for Fruit Growing at Vernon, B.C.—Typical of the District.

Irish, late of Sloan, Iowa, believes there is money to be made in the growing of cabbages and potatoes, and while visiting in the Okanagan last year, he decided to locate at Armstrong. Ten acres

strong to Vernon, and inspected many of the fruit farms and properties on the way. There are large tracts of good land which as yet are not under cultivation. One of the largest in the vicinity

atic cultivation would assist in conserving the moisture in the soil.

All of the land at Kelowna being sold by the land companies has facilities for irrigation, if such is required. The rainfall is not as heavy as at the northern end of the valley, nor can Kelowna be said to be in the dry belt. The temperature is never cold such as is experienced in Ontario and the summers are not excessively hot. Plowing starts about the first of March and our representative was able to pick sweet peas and dahlias when there on Oct. 22.

Fruit growing is not in an experimental stage in this district. Kelowna's export of fruit last year was over 1,114,000 pounds. As the value of land is best judged by results it should be mentioned that tomatoes grown on one acre of land (5,000 plants) sold for \$1,700; one-half an acre of strawberries were sold for \$626. Several growers gave ample proof to our representative that the returns from their land had been

valley have learned the lesson that good fruit properly packed is what the markets demand, and they are endeavoring to meet this demand. Splendid crops of tobacco also are grown in this district which is bringing high prices on account of its good qualities. On every side evidence can be seen where the early settler has come and cleared the land and in most instances they are now comparatively wealthy men. Hard work is necessary, but the reward is large.

The steamer stopped next at Peachland. This part of the valley, as its name implies, is a suitable location for the culture of peaches. During last summer the first large shipments of peaches were made from this place. Within the past four years thousands of peach trees have been planted here and at Summerland, a few miles farther down the lake. The excellent climate and soil, in addition to the splendid system of irrigation, makes Peachland

spected a large part of the land and system of irrigation in company with L. W. Shatford, M.P.P., a well-known authority on fruit growing in that section. Land was seen that, previous to the practice of irrigation, had never grown a crop. Since the moisture has been supplied the land has grown some of the largest peach trees ever seen by our representative. Nature has supplied the right kind of soil.

The Southern Okanagan Land Co. have a system of selling their land whereby a purchaser may contract with them to plow, plant, fence, prune and cultivate the orchard until it is in bearing, at which time the owner can build his home and live on the property. Several orchards that are cared for in this manner were visited by our representative in company with Mr. W. F. Kydd, of Simcoe, Ont. Mr. Kydd, who is a well-known fruit grower in Ontario, said that for sturdy growth of trees, cultivation of the soil, absence of weeds, and general thrifty appearance, he had never seen the equal of the land that has been planted and is being cared for by this company.

Eastern fruit growers must not forget that in buying unimproved land in British Columbia they must be prepared to do pioneer work as many of their fathers did when eastern Canada was settled. They can look for quicker and greater returns, however, owing to the facilities afforded by advanced civilization, and the larger markets for the fruits produced.—W.G.R.

Onion sets is a term applied to small onions that are planted out in the spring.

Mushrooms should show in from five to eight weeks, and the bed continue to yield for two or three months.

Closely allied to the onion is the common garlic. It can be grown in the north, but is not so largely used here as in southern countries.

Swiss chard or leaf-beet is grown in the same manner as the common table beet. The fresh leaf stalks are cooked and served like asparagus.

If onions for an early market are required, I start them in a hotbed some time between February 15 and March 1, and transplant them to the outside about April 15. I plant them three inches apart in rows 30 inches apart. Plenty of cultivation is required to secure best results. Onions like a sandy loam better than a black loam, but a good crop can be grown on either soil. They should be ready for market some time from July 1 to 15, depending on the season.—J. MacNamara, Bracondale, Ont.



Young Fruit Orchards at Penticton, B.C.

equally as good. Fruit from this section has won prizes repeatedly at the large British Columbia and British Fruit shows.

The product of the district is looked after by four large fruit packing establishments. The largest of these is operated by Messrs. Stirling & Pitcairn, who buy and pack fruit independent of the local fruit growers' exchange. This firm has such a good reputation as packers of good fruit that Prof. F. E. Sears, of the Massachusetts Agricultural College, recently ordered a box of apples to be sent to the college at Amherst for the purpose of demonstrating the most perfect plan in the packing of apples for export as practised at Kelowna. During last summer this firm shipped cherries as far east as Montreal, where they arrived in excellent condition. The Kelowna Farmers' Exchange also ships large quantities of fruit. The growers in the Okanagan

and Summerland splendid locations for peach orchards.

At the southern end of Okanagan Lake is Penticton, a town that is rapidly coming to the front through its bright prospects as a fruit centre. The property that is attracting the most attention is the old Ellis Ranch. This estate comprises some 30,000 acres of land, extending from twelve miles north of Penticton to the international boundary line, a distance of fifty-six miles. Nearly 25,000 acres of this land can be brought under cultivation by irrigation. The 2,000 acres of bottom lands have been under irrigation for some time, and have been producing some excellent mixed crops. A large reservoir has been constructed that supplies water to the upper benches (as the higher lands are known), on which have been planted thousands of peach and apple trees. Our representative spent several days in the vicinity of Penticton, and in-

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6. Articles and Illustrations for publication will be thankfully received by the editor.

Circulation Statement

Since the subscription price of THE CANADIAN HORTICULTURIST was reduced from \$1.00 to 60 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of THE CANADIAN HORTICULTURIST for the year ending with Dec., 1907. The figures given are exclusive of sample and spoiled copies and of papers sent to advertisers. Some months, including the sample copies, from 8,000 to 10,000 copies of THE CANADIAN HORTICULTURIST are mailed to people known to be interested in the growing of fruit, flowers or vegetable.

January 1907.....	4,947
February 1907.....	5,520
March 1907.....	6,380
April 1907.....	6,460
May 1907.....	6,620
June 1907.....	6,780
July 1907.....	6,920
August 1907.....	6,880
September 1907.....	7,078
October 1907.....	7,210
November 1907.....	7,250
December 1907.....	7,500

Total for the year..... 79,525
Average each issue..... 6,627
January 1908..... 7,650

Sworn detailed statements will be mailed upon application.

Our Protective Policy

We want the readers of THE CANADIAN HORTICULTURIST to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason to believe that any of our advertisers are unreliable, even in the slightest degree, we will discontinue immediately the publication of their advertisements in THE HORTICULTURIST. Should the circumstances warrant we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words "I saw your ad. in THE CANADIAN HORTICULTURIST." Complaints should be sent to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:

THE CANADIAN HORTICULTURIST,
506-7-8 Manning Chambers,
TORONTO, CANADA

EDITORIAL

A WARNING TO PLANTERS

We think that it is our duty to sound a warning to farmers and fruit growers who are placing orders for nursery stock, fruit, trees in particular, for next spring's planting. There will be a large planting of fruit trees the coming spring. Certain varieties that have been in large demand are at the present time very scarce with the nurserymen in both Canada and the United States. This scarcity is due in a great measure to the fact that certain varieties are in large demand, and also that the drought of last season curtailed, more or less, the growth of young trees, so that not as large a quantity graded up to standard as was usual, therefore the amount of saleable stock is short.

Responsible and reliable nursery concerns who guarantee their trees true to name are frank enough to tell their customers that they cannot supply the varieties required, and will not accept orders for those varieties they are short of, but this gives a chance for jobbers and dealers who have no responsible standing, have no reputation to keep up, and who simply want to do a catch trade, to book orders for these varieties (for these people always can fill whatever variety is asked for no matter how scarce the stock may be or how large the demand), but the chances are, that not many of the trees furnished by these jobbers and dealers will turn out true to name. If our large and responsible nursery concerns cannot furnish these varieties which are scarce, what chance has a jobber and dealer who expects to pick up cheap stock, of filling his order with trees that will be first-class and true to name?

We would advise and caution all farmers and fruit growers to find out where their trees are coming from. Find out whether the nursery concern is well rated and of a responsible standing before their order is placed. A man should be just as careful in this matter of buying trees as if he were investing money in stocks or bonds. After going to the expense of buying trees, preparing ground, cultivating and properly caring for them, it is naturally expected that when the trees come into bearing they will bear varieties that will be a source of income and profit for years to come. Often the reverse is the case, when sufficient care has not been taken in ordering stock from reliable concerns whose trees generally can be depended on.

THE SAN JOSE SCALE

Fruit growers soon will be preparing for the annual warfare against the San Jose scale. Many kinds of spraying mixtures will be used. Probably the most effective and cheapest remedy that has been in general use is the lime and sulphur wash. Its objectionable features in the matter of disagreeableness in application have caused many growers to neglect spraying in orchards that should be treated. For this reason, some of the experiment stations on the continent have been endeavoring to discover a remedy that can be more easily and more pleasantly applied. In the December issue of THE CANADIAN HORTICULTURIST mention was made of certain experiments that have been conducted with this end in view by the Storrs Agricultural Experiment Station. The formulas therein recommended are a step in the right direction. It is to be hoped that their application will prove satisfactory to the fruit growers of Canada.

From present indications and from the trend of opinion among fruit growers on the subject, it would seem that oil spraying is going to be the thing in the future. If not the formula recommended by the Storrs Station, some other will be used. All the ingredients necessary for the preparation of the mixture ought to be obtained in Canada as cheap as they can

be in that state. The important point is to secure the proper materials unadulterated. Local dealers are likely to substitute materials utterly unsuited for the purpose. Buyers should allow no substitution. All fruit growers in San Jose scale infected districts should give home-prepared miscible oils a trial.

PROGRESS IN NEW BRUNSWICK

The article in our December issue that told of horticultural progress in Nova Scotia, leads us to ask, "What have the fruit growers of New Brunswick done and what are they doing to get their share of the benefits of our growing fruit trade?" While it must be admitted that the horticultural progress of that province has been slow, it is encouraging to know that there has been, and still continues to be, a steady advance in fruit growing.

The increase in the production and use of small fruits, especially strawberries, has been marked. Many farmers in the St. John Valley are finding that apple growing is much more profitable than mixed farming, and they are giving more attention to their orchards. The result is seen plainly in better fruit, that is handled with more care and that sells readily for prices that give a good profit.

The outlook for fruit growing in New Brunswick is good for those who will apply to the work the intelligence and energy that is necessary for success in this as in other lines of business. With suitable cold storage available at St. John, with frequent regular sailings of steamers for the principal ports on the other side, with regular transportation by water or rail to United States points, and with a good home market, it will be their own fault if the fruit growers of New Brunswick do not get a share of the profits that are being derived from fruit growing in Canada.

The stand taken by Prof. M. Cumming, Secretary for Agriculture for Nova Scotia, against the brown-tailed moth in that province, is to be commended. His efforts to suppress and to exterminate the pest have been fruitful of good results. To assist in the extermination of this pest, the fruit growers and citizens of Nova Scotia can do much. Any person who knows of a locality where the pest is present, in nests or in some other stage of its life cycle, should communicate at the earliest opportunity with the Agricultural College at Truro. If all persons who are suspicious of the presence of this insect would do this, they would greatly facilitate future movements in connection with the suppression of this dangerous pest.

On all sides is heard the story that money is tight, and some persons even go so far as to say that times are hard. While this may be so in a few lines of business, it is far from true when the general prosperity of the country is considered. The condition of the money market has little effect on the fruit grower and farmer. While some growers may feel some pressure from the present condition of the money market, they should not be discouraged. Indications point to a successful and profitable season next year, and the growers should prepare for it.

We will deem it a favor if secretaries of horticultural societies will send, as soon as possible, a list of their members who are to receive THE CANADIAN HORTICULTURIST for 1908. We have over 3,000 horticultural society members' names on our mailing list, and a large number of these expired with the January issue. The secretaries will help us greatly, therefore, by sending in their renewal subscriptions at an early date.

Readers of THE CANADIAN HORTICULTURIST who desire a copy of the Index to Volume XXX, can have same by applying to this office.

Nova Scotia

The most successful short courses yet given at the Nova Scotia Agricultural College were held in January. Over 140 students were enrolled. Lectures were given on live stock, dairying, poultry, field crops, horticulture, insects, and so forth.

The work in horticulture began on Jan. 2 with a talk on the farm orchard by P. J. Shaw, of the college staff. In the evening, an address was given by Mr. R. S. Eaton, of Hilcrest orchard, on "Intensive and Extensive Orchardling." Mr. Eaton, who is one of the most successful orchardists in Canada, gave an account of an interesting experiment being carried on in his orchard, where apple trees used as fillers were set 8½ feet apart, and as they begin to crowd are dug up and reset at a greater distance apart. Allowing for driveways, 500 trees may thus be set to the acre. Mr. Eaton claimed that these fillers would more than pay for themselves before it is necessary to move them.

On Jan. 3, Mr. S. C. Parker, secretary of the Nova Scotia Fruit Growers' Association, gave a talk on spraying, showing why we spray, when to spray, and explaining the important points of a good spray pump. An interesting discussion followed.

Mr. W. T. Macoun, Ottawa, gave an address on some causes of failure in apple orchards, and the remedies. He dwelt especially on the care the trees should receive when they arrive from the nursery, and on the importance of choosing varieties suited to the soil and climate. He recommended the Duchess, Transparent, Alexander, Wealthy, McIntosh, Milwaukee, and Baxter for severe climates. Mr. Macoun spoke, also, on small fruits, dealing with the care they should receive and the best varieties to plant.

On Jan. 4, Mr. G. H. Vroom, Dominion Fruit Inspector for Nova Scotia, gave a demonstration on grading and packing apples. The afternoon was devoted to a discussion of the vegetable garden led by Mr. Shaw and Mr. Macoun.

On Jan. 6, Mr. Shaw gave a lesson on root grafting. Instruction in the other subjects of the course was continued until Jan. 14, and was thoroughly appreciated by the students in attendance.

Prince Edward Island

The Prince Edward Island Fruit Growers' Association met at Charlottetown last month, and with the assistance and encouragement of Mr. A. McNeill, Dominion Fruit Division, did very good work for horticulture in this province. The meetings were more of a family consultation than usual, not so many papers and addresses being on the program; but the temper of island growers in the present circumstances brooked it best, for just now there are many things to be consulted relative to the practical side of apple production here. It is true that there were excellent papers, one by Dr. Johnstone, one by Registrar White, and one by John Annear, but these, too, were altogether expressive of the season's difficulties and experiences, and dovetailed nicely into the discussions.

Chief McNeill gave two addresses, "The Duty of the Hour" and "The Island's Need of Co-operation," which were very much appreciated. Hon. S. E. Reid, Minister of Agriculture, spoke of the possibilities of successful fruit growing and urged hopefulness even in adverse years. The department over which he presided would do its best for the association and what it represented.

It was resolved to adopt Chief McNeill's plan of cooperative planting. The best paying varieties were declared to be Duchess, Alexander and Pawaukee. North Star promised especially well. Ben Davis, too, had brought good money and Baxter also, where grown, but its growth had so far been restricted. The society will take orders for stock, buying it judiciously and distributing it properly.

Another resolution approved the last Dominion Conference and asked for its reconvening

next year at furthest. The bulletins and fruit reports of the division were commended. A number of local motions were carried and placed on the record.

When the election of officers came round, the president asked the association to fulfil its promise of last and preceding years and relieve him. He had been long enough in the chair and would support director Johnstone heartily for president. The association, through Dr. Johnstone and others, refused to accept the refusal to serve, and in the circumstances the re-election was accepted for another year by the old officiality: Pres., Rev. Dr. Burke; vice-pres., Mr. D. J. Stewart; directors, Messrs. A. J. McFadyen, C. R. Dickey, Chas. Black, J. Newson, J. Johnstone, O. K. Henry, J. Robertson, Fred. Bovyer, and J. A. Dewar.

Quebec

W. Logan, Macdonald College

The Pomological and Fruit Growing Society of Quebec held its winter meeting at Macdonald College, Ste. Anne de Bellevue, on Dec. 18 and 19. The whole proceedings were characterized by a deep appreciation of the kindness of Sir W. C. Macdonald, and of Dr. Robertson for inviting the society to hold its winter meeting at the college. A paper on "Tree Surgery" was read by Mr. J. C. Chapais, St. Denis. In it he dealt with the method of setting up trees after they had been broken down by wind, snow or overmuch fruit. An interesting discussion on this paper was initiated by Professor Craig, of Cornell, in which Professors Macoun and Stuart took part.

"The Cultivation of an Apple Orchard" was the subject of an address by Prof. W. Stuart, Burlington, Vt. He gave some advice on the choice of a site for an orchard, the best varieties to grow, and how to seed. He urged a proper consideration of the advisability of an orchard crop, quoting the various depths of frost with different cover crops. He stated that a properly cared for orchard would be good for 60 or 70 years.

"Pruning with Demonstration" was the title of Professor Blair's address, in which he showed the way to prune and dress trees in a practical manner, so that the cuts made would heal properly. A paper on "Fameuse Apples" was read by Mr. R. W. Shepherd, Comox. He claimed that this variety of apple was by far the best, though several consecutive severe winters had done a lot of harm to the trees.

Principal Robertson gave an address on "Education for Horticulture." Mrs. Torrance, of Chateauguay Basin, read a paper on "Our Summer Fruits: Their Value in our Diet." Professor Craig, of Cornell, and others also gave addresses which will be reported later.

The appointment of officers resulted as follows: Patrons, Hon. S. A. Fisher and Hon. Jules Allard; hon. president, Mr. Auguste Dupuis; hon. vice-president, Mr. R. W. Shepherd; president, Mr. Robt. Brodie; vice-president, Mr. G. Reynaud; secretary, Mr. Peter Reid, Chateauguay Basin. Principal Robertson, Dr. Fletcher and Professor Macoun were appointed honorary life members. It was recommended that members of local horticultural societies throughout the province be invited to join the Pomological Society.

Enclosed please find renewal subscription. We can hardly get along without THE CANADIAN HORTICULTURIST.—Biggs Fruit & Produce Co., Ltd., Burlington, Ont.

The Popular Piano-Player.—The player-piano has stirred up any amount of enthusiasm musical circles, if the many sales being made by Heintzman & Co., Limited, 115-117 King Street West, Toronto, are to be taken as a criterion. This firm have a very wide selection of player-pianos at terms of payment to suit almost any purchaser.

Montreal

E. H. Wartman, Dominion Fruit Inspector

Since Jan. 7, I have been inspecting fruit in Whitby, Oshawa, Bowmanville, Cobourg and Colborne. I find apples keeping remarkably well all along the line. The wise apple exporter tells me that the place for No. 3 quality apples is to leave them in the hands of the producers, and I heartily agree with him. This grade has utilized thousands of barrels and caused many first-class ones to be frozen. The general outlook in fall seemed good and prices were well maintained up to Dec. 15, but, to-day, prices are low and stocks large. The future outlook is not so bright. As shippers are now leaving number three quality at home, and as France is wanting some of her favorites, Ben Davis and Golden Russets, let us hope she will take large quantities so that prices may take an upward advance.

The young orchards coming in yearly, 20,000 to 50,000 trees, bearing from half-barrel to one barrel, are helping to make the aggregate large. I think that American buyers coming in to buy a few thousand barrels had a tendency to set the average apple man a little wild in his calculations. It is said opposition is the life of trade, but sometimes too much causes great disaster, especially among apple exporters. Those packing apples to-day in the face of loss, who say, "I will keep up my grade," are the packers who will another year get back their loss and do credit to the trade in general.

Our Fruit in England

The following extracts were taken from a letter from Mr. Robert A. Lister, of Dursley, England, to Mr. J. A. Ruddick, regarding the Canadian exhibit of apples at the Gloucester Root, Fruit and Grain Exhibition, as illustrated on page 28:

"Hundreds of people came from a considerable distance to see this fruit, and were all greatly surprised at the beautiful colors on some of the fruit, many remarking that you must have had a great deal more sun in Canada this summer than we had in this country.

"I was enabled to allude to Canada, and its great possibilities as a fruit-growing country at the annual dinner, of which I was the chairman, and I am quite certain that from an advertisement point of view this cannot be otherwise than helpful.

"Next year I should like very much to make an exhibit of Canadian preserved fruit, about which I will write you in 9 or 10 months' time, as the exhibition takes place annually on the same day, Nov. 9. Next year Mr. Morgan Phillip Price, a gentleman who paid a visit to the Minister of Agriculture, with his mother and brother, 12 months ago, will be the President, and he is very much interested in the preservation of fruit."

The board of control of the fruit experiment stations of Ontario has given place to a new advisory board, appointed by the Minister of Agriculture. This advisory board will supervise the work of all the stations in the province, including the one at Jordan Harbor, and will consist of E. D. Smith, M.P., Winona; J. L. Hilborn, Leamington; Harold Jones, Maitland; G. C. Creelman, O.A.C., Guelph; P. W. Hodgetts, Toronto; and H. S. Peart, Superintendent of the Jordan Experimental Station.

High-Class Upright Piano for \$225.00.—There has been taken into the warerooms of Heintzman & Company, Limited, 115-117 King Street West, Toronto, within the past few days two upright pianos, very little used, and bearing the names of well-known manufacturers. One of these may be bought for \$225, and the other for \$250. It is an opportunity to get what is practically a new piano at nearly half the manufacturer's regular price.

Items of Interest

The question of developing the fruit-growing industry of Essex and Kent was discussed recently at a meeting of the Board of Trade in Chatham. A report will be published in our next issue.

At a meeting of the directors of the Ontario Fruit Growers' Association held in January, the following officers were elected for the ensuing year: Pres., A. W. Peart; Burlington, vice-pres., E. D. Smith, M.P., Winona; sec.-treas., P. W. Hodgetts, Parliament Buildings, Toronto. The executive committee will consist of these officers and Messrs. Elmer Lick, Oshawa, and J. E. Johnson, Simcoe.

A Piano for \$25.00.—In every sense of the word the sale of somewhat used, but not badly used, square pianos at Heintzman & Co.'s, Limited, 115-117 King Street West, Toronto, is sensational. The announcement has brought this firm orders from almost every corner of the Dominion. The determination is to clear out every square piano in the place between now and stock-taking, and surely prices like \$25, \$30, \$35, and \$40 will do it—in payments of \$5 down and 50c. a week.

GLADIOLI

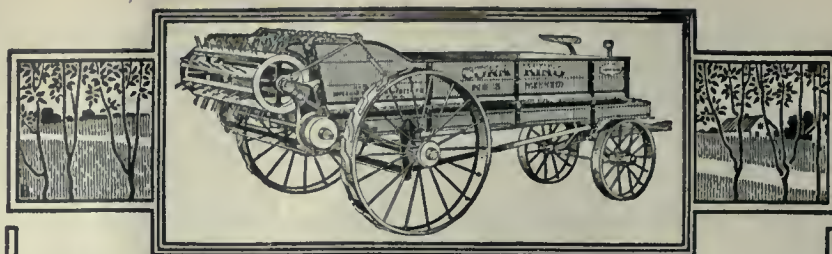
Groff's New Hybrid Seedlings. Groff's Pan-American Collection. Groff's World's Fair Collection. Groff's New Named Varieties.

Cannas, best varieties. Dahlias, many varieties. Peonies, choice new varieties.

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Campbell Bros., Simcoe, Ont.

Mention The Canadian Horticulturist when writing



*Make the manure bring you
\$4 a ton*

Thousands of Successful Farmers Are Doing It

There is no charm or secret about it. You simply spread it with a machine, and thus make it go twice as far, get twice as much good from it on the first crop, do your land more permanent good, and save half the time and labor of handling.

Manure is generally estimated to be worth \$2.00 a ton handled the old way. There is no doubt that it is worth twice as much to the farmer who spreads with a machine.

Two of the most practical and valuable machines manufactured for farm use today are the **Corn King** and **Cloverleaf** manure spreaders. They are each made in a number of sizes.

These machines differ somewhat in construction and operation, but both are right working and of great durability.

They are proven machines. They embody the best mechanical ideas, the materials used in construction are the best for the purpose, they are made as simple

as possible, and they handle manure in all conditions to the perfect satisfaction of users. Proof of all this is to be found in the record each machine has made in the field.

Is it not to your interest to own and use one of these spreaders on your farm?

Figure out for yourself and you must agree that it will be a paying investment, even if you do not have over twenty-five loads of manure to spread in a year.

You can't help but be pleased with the work, the easy handling, the light draft and the substantial making which saves you the annoyance of breakage and repairs.

Call and see these spreaders with the local International agent. He will gladly point out to you the superior features of these machines, as well as supply you with catalogue, colored hanger or other information.

The nearest branch house will supply you with any further information desired.
CANADIAN BRANCHES: Calgary, London, Montreal, Ottawa, Regina, St. John, Hamilton, Winnipeg
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FRUIT TREES, SMALL FRUITS AND GOOSEBERRIES IN THOUSANDS



CONCORDS—Heiderleigh Stock

☐ **APPLE TREES**—A general line of the best commercial varieties in the most select grades.

☐ **PEARS, PEACHES, PLUMS and CHERRIES**—A choice selection of the best kinds, well rooted, thrifty stock, true to name.

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☐ **GRAPE VINES**—My vines are grown by a specialist with a lifelong experience. I have thousands of one-year-old Concords and Niagaras at rock-bottom prices.

WRITE FOR TERMS AND CATALOGUE. A FEW VACANCIES FOR AGENTS.

ESTABLISHED ¼ CENTURY. 800 ACRES.

E. D. Smith, Winona, Ontario

Mention The Canadian Horticulturist when writing

The Incubator and Its Use

S. Short, Ottawa

THE possibilities and pleasures of the interesting machine, the incubator, are not, as yet, as generally known as they ought to be. Many still there are who doubt its ability to hatch as well as hens will hatch. To those who have never tried hatching by machine, the statement is made, backed up by the experience of the majority of poultry-keepers, that the incubator is a success and is a necessity to any breeder who annually hatches 50 eggs or over.

As made at the present time, the incubator is both useful and ornamental. It can be kept in a spare room or attic or in the basement with perfect safety. The basement is preferable if the atmosphere is even, say anywhere near 50 degrees or over, and not given to sudden changes in temperature. With a properly run machine, with the lamp clean and in order, there is no smell worth mentioning at any time when in operation if a good oil is used, and the unfertile or lifeless eggs are removed when testing. With all machines extant, a tester and thermometer are sent, but if they are not included they should be specially ordered, for they cannot be one without.

Start the machine and be sure the thermometer registers at least 103 degrees before putting in the eggs. It is imperative that an even temperature should be kept up throughout the 21 days of incubation. Experiments have shown that while eggs will hatch that have been subjected to 101 and 102 degrees the first day or two, yet the chicks were never as vigorous and even after maturity never laid as well as those which hatched from eggs started at 103 and at temperature maintained during the whole period of incubation. Of course, every hatch may not be a success; probably if the same eggs had been put under hens they would not have hatched either.

The chief factors in being successful are, first, healthy hens, mated properly, and cared for by some one who knows his business as a poultry-keeper, to lay fertile eggs; second, have the machine in good running order before putting in the eggs; and lastly, if without previous experience, follow carefully and explicitly the directions sent with each machine by the manufacturer.

While many incubators are used by fanciers residing in the cities and towns it is safe to say that the majority of the machines are sold to suburbanites and fruit growers living outside

the city limits but near enough to benefit by having a good market for disposing of whatever fruit or vegetables they may be engaged in producing. The incubator provides the suburbanite and all the members of his family with many hours of pleasurable anticipation. The preparation of the machine whiles away one evening; then at least twice daily, the lamp is inspected and the thermometer is noted, and if all goes well for two or three days, the chickens are counted. One cannot help it, perhaps—the gambling instinct is stronger in chicken fiends than others, but the fad remains that despite the proverb "not to count the chickens before they are hatched," they have been and always will be counted as long as there are eggs to hatch.

After the seventh day the first test is made, and if new to the work, it is advisable to call in an expert fiend if one is available. If a thorough culling out is made, then another test a week later should be sufficient. If all has gone well there is considerable excitement the twenty-first day. Early in the morning there is a rush to see the results, and if successful, chickens and incubator furnish the subjects for most of the day's conversation.

With the development of fruit and vegetable growing, poultry keeping has been keeping pace. The two industries make a good combination. In winter time the gardener and orchardist has time which can profitably be given to the production of winter eggs. The garden and orchard in early spring and late autumn make splendid foraging grounds for the fowl. The incubators can be started at about the time for making the hotbeds so that hatching will be over by the time the heavy work of spring plowing and planting begins. During the summer waste fruit and vegetables fed to the poultry will help considerably in lightening the feed bills.

Just a word further—There are a great many different makes of incubators, both Canadian and American, on the market now. It is decidedly to the advantage of a Canadian to buy a Canadian machine. The shipping expenses are less, no customs charges to be paid, and the delivery is much more prompt. Patronize home industry.

FOR SALE AND WANT ADVERTISEMENTS

Advertisements under this heading inserted at rate of two cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 25 cents, strictly cash in advance.

MR. CHARLES ERNEST WOOLVERTON, Grimsby, Ontario, landscape architect, parks, cemeteries, pleasure, school and home grounds laid out, surveys made. Working drawings to a scale so that any gardener can work them out. Terms very reasonable

A MILLION STRAWBERRY PLANTS for sale, not bought from dealers, but grown on my own farm last year. Fifty-five varieties. New Highland, Three W, Victor, Wonder, Thompson's No. 2, President, Morningstar, Abington, Almo, Governor Rollins, and others, and all the leading old varieties. If you want plants this year that will please you when they arrive, and please you better still when they fruit, order Downham's. They have pleased others and will please you. It will pay you to get my free catalog before you buy, ready to mail now. Raspberry and Blackberry plants, and Seed Potatoes. John Downham, Strathroy, Ont.

FRUIT GROWERS! Drain your land and double your income. This may seem exaggerated but it's a fact. Use Doyle's tile. Estimates given. R. J. Doyle, Owen Sound.

SEND YOUR ADDRESS for list of strawberry plants, also red and black raspberry plants and seed potatoes. R. C. Crysler, St. George, Ont.

FOR SALE, Six No. 8 Gurney Hot Water Boilers in good condition, suitable for private house or greenhouse work. Apply Stevenson & Malcolm Co., Guelph, Ont.

GARDENER seeks situation. Has had nine years' good experience in all important branches. Can show good English references. E. Campin, West Essa P.O., Ont.

CHAS. A. CYPHERS' Model Incubators and Brooders

On my Model Poultry Farm I now have poultry numbering **80,000** hatched and brooded in my famous Model Incubators and Brooders. Buying your incubators and brooders of a man who knows nothing (or next to nothing) about hatching and raising poultry is running a useless risk. Don't do it.



I not only sell you a Model Incubator or Brooder, but I add to them the valuable experience of years as shown in their construction. Model Incubators show excellent hatches, hatch every hatchable egg. The Model Brooder grow sturdy chicks.

Send your order in to-day, and get in line with the profit getters.

Free catalogue for everyone.

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PLANT PELHAM'S Peerless Apple Trees

A big red winter apple that sells at sight.
Also a full line of fruit and ornamental trees.
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Sure Death to San Jose Scale

Add 16 gallons water to 1 Scalecide and it's ready to use. Absolutely permanent percentage maintained, saves time enough to pay for the material. Guaranteed. It's cheap, effective, easy to use, non-corrosive, non-clogging, and contains more oil and less water than any other commercial spray. In 1-5-10 gallon cans, 25 and 50 gallon barrels. Free booklet. **B. G. PRATT CO., Mfrs. New York,**
SPRAMOTOR CO., Sole Can. Agents, 1069 KING St., London, Can.

ORDER
A
BARREL
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Let me tell you how
to make money
out of poultry.



I have started others
earning good profits.
I can start you.



JUST a very little more time than you spend now caring for a few hens can be turned into a good profit with a Chatham Incubator.

That is the best of it. It requires no experience. Just follow my simple, clear directions. Your wife or daughter can do all that is required in a few minutes each day while the hatch is on.

And the profits are sure and certain. I know this is true because I am receiving letters every day from those who are using my incubator and making good money out of it. Many of these people never used an incubator before, others have tried other makes but are making bigger profits with a Chatham Incubator.

The Experimental Farm at Guelph, Ont., use my Chatham Incubator in their special poultry course. In a recent letter the Professor of that course stated that they out-hatched any incubator they have had on the farm.

Don't you think that the incubator that the Ontario Government has found best should prove best for you?

So you see it not only is a case of making more money with an incubator than by the old setting-hen way, but it also means you can make more money with my Chatham Incubator than any other on the market.

I want to send
you my special
price, on time,
for a
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I guarantee the Chatham Incubator for five years. This is not a mere promise, it is an actual guarantee, backed by my Company, who have been doing business in the United States and Canada for over 50 years. If our guarantee wasn't an actual bona fide one and our dealings honest and fair, we couldn't have continued in business so long. Don't you think so?

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Bulletin on Bordeaux Injury

Reviewed by Prof. W. Lochhead, Macdonald College

BORDEAUX Injury.—Agricultural Experiment Station, Geneva, N.Y., Bull. 287, by U. P. Hedrick.—In ordinary years one hears occasionally of injury to fruit trees as a result of spraying with Bordeaux. In 1905 in Ontario and elsewhere, many such cases were reported. On account of these repeated reports, an investigation was undertaken by the Geneva station to determine, if possible, the causes of the alleged injuries. Affected apples show a specking at first, followed by a "russetting," so that the keeping qualities of the fruit are disturbed, and its market value is lowered. Affected leaves show a brown spotting, followed by their death and fall.

The experiments carried on in connection with the investigation convinced the experimenters that the Bordeaux mixture caused the injuries to the fruit and the leaves that have been so frequently reported of late years. The Bordeaux, they believe, acted as a poison to the tissues lying beneath the skin, entering through the breathing pores and the basal cells of the plant hairs. The specks that formed as the first symptoms of injury leading to russetting, were usually formed about the breathing pores. Not only were different species of fruit trees, such as peaches, plums, and so on, injured to different degrees by Bordeaux, but different varieties of the apple, for example, varied in the extent of injury under similar treatment. Wet weather and early spraying favored the development of russetting, and the greater the quantity of copper sulphate used in making the Bordeaux the greater the injury. The bulletin recommends that the amount of spray liquid should be just sufficient to wet the tree, and only in dry weather, and that the Bordeaux be prepared by using equal parts of lime and copper sulphate.

The reviewer has already had occasion to treat of "Injurious Action of Bordeaux in Apple Orchards" (O.A.C. Report, 1905, pp. 54-58). His studies at that time forced him to the conclusion that the injury was not due entirely to Bordeaux, for these reasons: russetting was not confined to sprayed orchards, and it was quite prevalent in unsprayed orchards treated by the same man, at the same time, and with the same pump.

Fruit Institutes

The farmers' institute branch of the Ontario Department of Agriculture has taken a marked step in advance in the line of agricultural education. A three days' meeting was held at Grimsby, Dec. 16, 17, 18, with an attendance of over 80 men from Grimsby and the surrounding district. An interesting program was followed, and the discussions by local men took up every minute of the time allotted.

Never before in the history of farmers institute work have the fruit growers taken so active

an interest as that manifested at this meeting Mr. Putman, Supt. of Farmers' Institutes, was present, and gave a short talk on the scheme attempted for the first time in Ontario. He encouraged the farmers to form farmers' clubs and hold monthly, or even twice a month, meetings for the discussion of local subjects and increase the knowledge and, as a consequence, the wealth of each community. The department is willing to do all within reason to assist farmers' clubs, and short courses of instruction by furnishing lecturers on special subjects. Any local institute desiring a course similar to the one put on at Grimsby, and followed by the one on Dec. 18, 19 and 20, at Trenton, should correspond with Mr. Putman for particulars. The following resolution passed by the Trenton meeting shows the attitude of those who attended the meeting:

"We, the fruit growers of Trenton and the surrounding vicinity, desire to express our appreciation of the action taken by the farmers' institute branch of the Department of Agriculture in putting on this three days' course of instruction; we consider it has been of very great value to those in attendance, and we trust the said department may see fit to favor the counties of Prince Edward, Hastings and Northumberland with a series of such meetings."



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Spray of One of the New Japan Lilacs

Nova Scotia Fruit Growers

At the annual convention of the Nova Scotia Fruit Growers' Association, which was held in Berwick in December, an interesting discussion took place on "Orchard Management." Prof. F. C. Sears of the State Agricultural College, Amherst, Mass., took the fertilizer question for his theme. He gave the results of an experiment carried on for nine years at the college farm, showing the value of stable manure and other fertilizers as applied to the orchard. A. McNeill, Chief, Fruit Division, spoke on pruning and said that a little pruning at the right time was enough. A saw was unnecessary in an orchard; hand pruners if used when they should be would do the work. Trees should be headed low, 18 to 24 inches. In these days of insects, scale and fungus, low-headed trees were more easily cared for than the old style of high spreading tops. G. W. McLean, of Woodville, said he had not pruned his orchard for 15 years, and was satisfied that too much pruning was done by many orchardists. "Spraying" was discussed by W. H. Woodworth and others.

Professor Cumming stated that the efforts to check the incursion of brown-tail moth reported in Annapolis county had met with marked success. A recent inspection of the infested territory resulted in the discovery of comparatively few nests. He announced that efforts would be continued with the hope of completing the extermination of this new pest, and said that a bounty of 10 cents for each nest collected would be paid by his department. Professor Cumming also said that work at the college was progressing most favorably. The attendance was larger than ever before, and great interest was manifested.

"Fruit Growing in New England" was the

subject of an illustrated address by Prof. Sears. The professor, who has spent six months on the staff of the Mass. College, succeeding ten years in the Annapolis Valley, evidently was not favorably impressed with the importance of orcharding in the state.

Professor F. A. Waugh, also of the Mass. College staff, gave an interesting talk on "Smaller Fruit Trees." This address was illustrated with lantern slides, and urged the importance of smaller orchard trees for convenience in pruning, spraying and picking fruit.

The well-worn question of ocean transportation was again thrashed out, and a series of resolutions passed again urging upon the Department of Trade and Commerce the necessity in the interests of fruit growers of compelling the Furness-Withy Steamship Co. to live up to the terms of their contract, or withhold the subsidy. It was pointed out that in spite of the fact that the contract called for a 12-knot service or 10 days' passage, the steamers were seldom getting under a 12-day passage, and sometimes 14.

Cooperation in marketing was introduced by Frank A. Bolson, of Middleton. Mr. Bolson referred to the advantages to be gained by a combination of effort. Expenses could be reduced, a more uniform pack of fruit secured, and wider advantages gained in other ways. Mr. McNeill went into the question on a broader scale, referring to the cooperative organizations of the Pacific slope, and instanced a number of such cooperations successful in Ontario. Secretary Parker said one company had been organized in Berwick, and was doing business this year. The company had to organize under the Nova Scotia Joint Stock Companies Act. They had a nominal capital of \$10,000. The company had 12 members subscribing five

shares each, or \$6,000. They were operating in a rented warehouse, and were packing about 10,000 barrels this season. The company had sold a good proportion of their output, including about 2,000 barrels of Gravensteins at \$2.75 for No. 1 stock, including 25% of No. 2. They had also sold 2,000 barrels hard stock at \$3 with usual proportion of two's. As was to be expected they had met some difficulties and found obstacles, but all interested were well pleased with the progress made.

The following officers were elected: Pres., R. W. Starr, Wolfville; senior vice-pres., G. C. Miller, Middleton; sec., S. C. Parker, Berwick; assistant sec., J. H. Cox, Cambridge; treas., G. W. Munro, Wolfville. Each county also is represented by a vice-president.

New Spraying Machine.—A spraying machine that is being introduced into Canada for the first time is the Protumna Gas Sprayer. Not only is it claimed to have all the points of other sprayers as regards simplicity, effectiveness and lightness, but also it has a patent device for spreading the gas when it enters the spraying tank in such a way that it saves a large percentage of gas; in other words, one drum of gas will throw much more spraying material than with any other gas machine. The American Horticultural Distributing Company, of Martinsburg, W. Va., are introducing it, and are making a very liberal introductory offer. This firm maintains an experimental orchard of 20,000 trees, where every kind of spraying pump and apparatus, as well as insecticides and fungicides, are thoroughly tested before being offered for sale. The Protumna Gas Sprayer is the outcome of experience, not theory. Read the advertisement on another page and write direct to the makers for further information.

Strawberry Plants



THREE W'S

Reported on by Mr. E. B. Stevenson, of Guelph, in 1906, as follows: "This new one was one of the best for market. At one of the pickings I picked 3 boxes without moving; at another later picking I picked one box for every 2 feet of row.

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New Spray Fluids

During the past 15 or 20 years rapid progress has been made in combatting insects and fungi that attack cultivated trees and plants. The advance in this department of economic horticulture is difficult to realize. As the season for spraying approaches each year, new discoveries in insecticides and fungicides are brought to the attention of growers. Most of them prove of little worth; a few are of value. The latest discovery and one that, according to reports from England, gives promise of revolutionizing the practice of fruit tree spraying has been originated in England, and is now being brought to the attention of the fruit growers of Canada. It is a product from the laboratories of Wm. Cooper & Nephews, Berkhamsted, England. This firm is well known all over the world for a score of scientific preparations that have proven of incalculable value in practice, particularly the famous Cooper's Sheep Dip.

The spraying mixtures introduced by this firm are known as V1 Fluid and V2 Fluid. The former makes a winter spray mixture, and the latter is prepared for summer use. These fluids have been tested extensively in the orchards of Old Country growers, and it is claimed have proven efficient in all respects. Both of them are easy to use. They have only to be diluted with cold water and they are ready for the trees. They are highly concentrated. One gallon of either fluid must be diluted with 100 gallons of water before using. These fluids are harmless to the trees if applied as directed. They are easy to use and do not corrode and clog the nozzle. Unlike some other mixtures in common use in this country, they may be applied without risk or discomfort to the user. They are uniform in composition and are reported to be reliable in action. An immense amount of labor is saved by their use,

as one application of each fluid usually is sufficient for a whole year.

In the opinion of Mr. Walter E. Collinge, M.Sc., the foremost authority on insecticides and fungicides in Great Britain, "the fruit growers will have in the V1 and V2 Fluids a winter and summer spray fluid almost impossible to improve upon. Most important results have been obtained from their use. In one orchard where V1, the winter spray, was tried on about 100 acres of apple, pear and plum trees and 34 acres of other fruits, pear psylla, apple and plum aphids, and oyster-shell scale were exceedingly bad last year. A careful inspection was made in the following March of some 30 to 40 of the worst attacked trees, and not a single egg of any of these pests could be found alive." Another report states: "I consider the winter wash with V1 Fluid very effectual, and I think a most wonderful stride in the art of spraying fruit trees has been made."

As spraying is one of the great problems in successful fruit culture in Canada, it is with pleasure that we bring these fluids to the notice of orchardists. Every fruit grower should give these fluids a trial. Wm. Cooper & Nephews have established a general office for Canada in Toronto. It is probable that distributing points will be established in all the provinces. Mr. W. Staley Spark is manager for the Dominion. Write at once for booklet "A" to Wm. Cooper & Nephews, Room 306 Manning Chambers, Toronto.

Giving Organs Away.—This heading is misleading if you like, only to the extent that when Heintzman & Co., Limited, 115-117 King Street West, Toronto, announce that they are selling organs at \$10, \$15, and \$20 each, in payments of 50c. a week, it is next door to giving the organs away. One can hardly expect that such bargains will last very long. Wise ones will see about the matter at once.

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½ acre Strawberries.....	\$ 626
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Prices, \$150 and \$200 per acre.
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The Canadian Horticulturist

Vol. XXXI

MARCH, 1908

No. 3

The Best Stock on Which to Top-Graft the Spy

W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa

THERE is no winter apple so popular in the province of Ontario as the Northern Spy, and its popularity is not confined to Ontario alone. The men who have gone from that province and settled in the newer parts of Canada remember the Spy as the favorite variety of their youth, and they want it in their homes in the west. Owing to its fine appearance and good quality, it is popular in every part of Canada where it succeeds and is in high favor in Great Britain. Because of its popularity there is a great demand for this fruit, and it is proving one of the most profitable apples where there are trees in full bearing. Unfortunately it has one serious defect, which has checked in some measure the general planting of it. It does not bear early enough. The well-known fact that "top-grafts" fruit sooner than standard trees has induced fruit growers to top-graft the Northern Spy either on bearing trees of less value or on young trees planted especially for the purpose. The increasing attention which is being given to top-grafting makes it important that the best stocks for Northern Spy should be known and this article is written partly for the purpose of getting others to give their experience in THE CANADIAN HORTICULTURIST, of top-grafting this variety on different varieties.

The Northern Spy is a strong-growing tree; hence, in order to have a tree which is not top heavy, and that will not break down, it is necessary to have a strong growing stock, for, although the kind of stock used does in some measure check the growth of the top, the individual characteristics of the two remain largely the same, and if the Northern Spy is top-grafted on a slow-growing tree, it will sooner or later so outgrow it that the tree becomes top heavy, and just when we are expecting good returns it may blow down or break off at the grafted part. Even strong growing trees sometimes do not make good unions with other strong growing trees. For best results, the Northern Spy should be grafted on a strong grow-

ing variety which will make a good union with it. At the Central Experimental Farm, parts of three trees were top-grafted with Northern Spy in 1891. Two trees were Wealthy, and one was Duchess. These were chosen as being hardy, and not with the idea that they were especially good stocks for the Northern Spy, nor did they turn out to be. They all fruited in 1897. The graft broke off one Wealthy tree during a high wind in 1899, and off the other from the same cause in 1902. The stocks were not strong enough growers

Officially Adopted

At the annual meeting of the New Brunswick Fruit Growers' Association, held at Fredericton on January 24, 1908, it was decided, on motion, to adopt THE CANADIAN HORTICULTURIST as their official organ for the Dominion.—S. B. Hatheway, Secretary.

and the grafts were top heavy. The grafts on the Duchess tree remained longer, but during the winter of 1903-4, the Northern Spy was killed, the stock remaining alive. If the Spy had not been killed, it would have soon broken off, as it had already begun to go. The results of these tests show the importance of having strong growing stocks.

Mr. G. C. Caston, Craighurst, Ontario, has had considerable experience in top-grafting Northern Spy. Following are extracts from a letter received from him: "I have Northern Spy on many different stocks—Tolman Sweet, Wealthy, Baxter, Yellow Transparent, on several kinds of crabs, on Belle de Boskoop, and over a dozen of the other Russian varieties. I may say that it is doing well on all of them. No variety has done better as a stock for Spy than Yellow Transparent. The union is perfect, and the top luxuriant. The worst I have tried are Golden Russet and Astrachan."

Mr. J. I. Graham, Vandeleur, Ontario, stated at the last annual meeting of the Ontario Fruit Growers' Association that he had had good success in the use of Ben Davis as a stock for Northern Spy. In a letter since received from Mr. Graham he states: "My trees were planted in the early '80's. I was guided by the Provincial Agricultural Committee Report, which was published in '81. When they began to bear I was not suited with them. I am well pleased with the Ben Davis as a stock. At first I grafted a few of the best varieties, such as King, Baldwin and Hurlbut. The last was highly recommended, but I do not like it, but they are choice trees in every way. No person could tell that they were grafted, and they are very heavy bearers. I have Spys also on Colvert, twenty-five years grafted and a number later. The union is good and stocks sufficiently large. About the time of grafting the Ben Davis, I grafted some Duchess. I was telling you then, and you expressed a doubt about the stock being sufficiently large. A year ago the 10th of October last, we had a heavy fall of soft snow, twelve inches, and they were loaded with apples. They broke at the crotch, while about twelve Spys split. They were raised with team, rope and pulley, and had a nice crop. This year the Duchess were done.

"One spring I grafted a number of Colvert, St. Lawrence, Astrachan, and Sherwoods' Favorite. None of the Sherwoods' Favorite I considered a success. They seemed to sunscald, to send out shoots and the scions did not grow like the others. I have Spy on Fall Jennetting, Fall Pippin, Colvert, Wealthy, Keswick, Codlin, and a seedling. I regard the seedling the best where the branches grow out from the stock without making a crotch. I have some old Spy grafts; the tree is twenty-five feet high, and of late years I am trying to cut back about one-half of the year's growth to see if I can get them to bear nearer the ground. That seems to be the fault of the scion even more so than the Spy tree. I have some Ben Davis

not top-grafted yet, some time planted. They give good crops and all stocks are sound and healthy whether grafted or not."

These are interesting records. Before grafting time, let us hear from others who have had experience with top-grafting Northern Spy. The longer the experience the better, as sometimes

grafts do well at first but afterwards become top heavy.

The information growers want is: What stocks are the best? How long does it take Northern Spy to come into bearing when top-grafted on bearing trees? How long does it take Spy to come into bearing when grafted on young trees?

Pointers on Growing Strawberries

AT a recent meeting of the Toronto branch of the Ontario Vegetable Growers' Association, two valuable addresses were given on growing strawberries. Many practical hints were given, not only by the speakers, but also by others who took part in the discussion. Mr. J. C. Bell, of Cooksville, Ont., spoke in part as follows:

"Although strawberries will grow on almost any kind of soil, they do best on a rich, heavy sand, with a quicksand bottom. This type of soil furnishes plenty of moisture, not only for the growth of the plants, but also for giving size to the fruit. The land should be prepared during the previous fall by plowing in about sixty tons of manure an acre. In the following spring, it should be worked up and fertilized again with about twenty-five loads of well-rotted manure an acre.

"The land is marked three and one-half feet apart for the rows and two feet for planting in the rows. By means of a scuffer, a shallow drill is made along the row markings. The whole area is then rolled and the drills are once more opened. Planting is done with a spade. Well-grown plants are selected from rows of stock plants. A small portion of both tops and roots are trimmed off. The plants are placed in small holes made by the spade and planted firmly. In about a week after planting, a Breed's weeder is run over the patch, then about 500 pounds an acre of a bone and potash fertilizer are applied and worked in. Scuffling and hoeing are continued all summer. It costs at least \$150 an acre to produce a crop of strawberries.

"It is difficult to recommend varieties that will do well in all localities. Those that have done best with me are, practically in the order of ripening, Excelsior, Michel's Early, Auguste Luther, Lovett, Tennessee Prolific, Clyde, Wm. Belt and Williams. For home use, three varieties that will cover the season nicely are, Auguste Luther, Wm. Belt and Brandywine."

Mr. Edward Eagle, of Weston, Ont., supported most of the recommendations of the foregoing speaker, and gave a few additional hints. As Mr. Eagle's land is low and flat, rather than high and comparatively dry, such as Mr. Bell's, he practises a somewhat different sys-

tem of culture. He grows his strawberries on a black, sandy loam, which is manured in the spring with thirty tons an acre of well-rotted horse manure. The land is plowed four or five inches deep, harrowed and marked. Planting is done as soon as the ground is ready. The plants are placed one and one-half to two feet apart in rows that are four feet apart. For planting, a round-mouth draining spade is used. The spade is inserted in the ground and moved backwards and forwards. Into the opening thus made, the roots of the plants are spread and planted firmly by pressure of the foot. Cultivation is started at once, so as to produce a dust mulch as early as possible. To produce strong growth the first season, the blossom stalks are removed from the mother plants.

"On the old patch," said Mr. Eagle, "picking is done in the morning so that the fruit can be taken to the market as early as possible. The berries are kept shaded and as clean as possible and the boxes are picked full. As soon as picking is concluded for the season, the patch is plowed down and sown with oats. These are cut and used for mulching the new patch that is coming on."

Spraying Apple Trees

On the front cover of this issue of THE CANADIAN HORTICULTURIST is illustrated the spraying outfit used by the Norfolk Fruit Growers' Association, Simcoe, Ont. This organization has been in existence only a short time and has done excellent work in a cooperative way for the fruit growers and farmers of that locality. One of the requirements of membership in the association is that thorough spraying must be done in the orchards of the members. To aid in having the work done properly, the executive of the association distributes the following information; the advice given is valuable for fruit growers everywhere:

"Apply the first spraying when the buds begin to swell. Use twenty pounds of blue vitriol, sixty pounds of lime, and 200 gallons of water. Always estimate ten pounds of water to the gallon.

"The second spraying should be done just before the buds break open and the third spraying just as soon as the blos-

soms fall, with twelve pounds of blue vitriol, twelve ounces of Paris green, twelve ounces of white arsenic, two and one-half pounds of sal soda, fifty pounds of lime, and 200 gallons of water.

"Always prepare the arsenic by boiling twelve ounces of arsenic with two and one-half pounds of sal soda in two gallons of water for forty-five minutes; if you have a kettle large enough, you can make up a stock solution. Keep this kettle away from live stock as it is poison.

"To make 200 gallons for the second spraying: Put twelve pounds of vitriol in a hopper with burlap bottom, which place over the hole in your tank. Pump or pour 150 gallons of water on this vitriol, straining in the tank. Then slack fifty pounds of good lime (none air-slacked) in fifty gallons of water and strain through a hopper with a wire bottom into the 150 gallons already in the tank. Then, of your boiled arsenic solution, add an amount equivalent to twelve ounces of white arsenic and two and one-half pounds of sal soda. Then add twelve ounces of Paris green by dissolving in a small pail of water. Each time in adding lime, arsenic and Paris green, agitate thoroughly. Now you are ready for the orchard; keep well agitated and a good pressure.

"Always clean out the lime box with water every time after using. Pump some clean water through your pump nozzles, and so forth, every night when in use and keep the tank well cleaned.

THE CANADIAN HORTICULTURIST would like to receive for publication letters from its readers on their experiences in spraying for San Jose scale, oyster-shell scale, codling moth, apple and pear scab, and for other orchard pests. Have one or two photographs taken.

In strawberry culture, runners that reach beyond a reasonable limit should be cut off. The plants should be cultivated at least once a week and after each rain, and utter extermination of weeds is necessary to success. If the ground has been kept free from weeds the previous year the weed killing will be a much easier job. Rows must not be ridged up too high when cultivated.

"Oyster-shell scale can be exterminated by spraying, in exactly the same manner as when using the lime and sulphur wash for San Jose scale. A double spraying is necessary. It is most important to give a re-touching spray. The trees should be gone over in the customary way and repeated a few days later, so as to make sure of bringing the mixture in contact with every portion of twig and branch.—H. A. Surface, M. Sc., Harrisburg, Penn.

Pruning Pears, Plums and Peaches

Joseph Tweddle, Fruitland, Ontario

PRUNE pears according to the previous season's growth, to the amount of fruit buds in sight, and to the prevalence or prospect of fire blight. In our own practice we first cut

ditions and find a tree with strong, thrifty, new wood with probably few fruit buds. In such cases we pursue the opposite course, thinning only for light and air and as much fruit as we can get

we would get an overgrowth of wood and but little fruit. Every fruit spur would grow a shoot one to two feet in length and the tree would set no more fruit buds for two years or more. Such a condition of growth invites fire blight.

All intermediate conditions of growth and fruit buds occur between the two extremes aforementioned. They should be pruned with the same purpose in view; that is, to balance the tree for a fair crop of good fruit.

Peach and plum trees are pruned by the same rules except that heavy pruning does not hinder fruit bud setting and that we prune much more severely, heading back nearly all the twigs so as to get large fruit by leaving only fifty per cent. of the fruit buds. Even a small branch overlooked in pruning will produce small fruit.

We find that the use of wagons is a great advantage over ladders. All our tools are carried on the wagons, which can be moved quickly from tree to tree. We use small fruit decks with one board out in the centre to vary our height as needed. Quiet horses are used with blankets under the harness. We gain twenty-five per cent in time by the use of wagons.

The culture of grapes for market is an industry that is assuming large proportions in some sections of Canada, particularly in the Niagara district. For the benefit of beginners, experienced grape growers are requested to contribute letters and articles for publication in *THE CANADIAN HORTICULTURIST* on their methods of growing.



Pruning Plums in the Niagara Peninsula

Orchard of Joseph Tweddle, Fruitland, Ontario. Note that wagons are used instead of ladders.

out any existing blight well below the affected parts, using continuously, a five per cent. solution of carbolic acid for disinfecting the tools and also the cuts to avoid carrying the infection from diseased to healthy parts. Then we start a gang, consisting of a competent foreman and three men mounted on two single fruit wagons, as shown in the illustration, one rig on each side of the row, the foreman overseeing and directing the work and at the same time pruning his share of the tree. He corrects mistakes and quickly teaches the men with him the "why and how" to prune into proper shape the varying forms and conditions of each tree.

We may approach a tree with very little new growth and set too full of fruit buds. Such a tree probably would set so much fruit (if left unpruned) that the whole crop would be so far below normal or good size that all would be unsaleable. We thin this crop by pruning back to reduce the fruit buds fully thirty to forty per cent. Then we thin freely to give light and air, and to shape the tree generally.

We may come to the opposite con-

by leaving all the buds possible. If we pruned this tree as we did the former,



A Hand Power Goulds Sprayer at Work Spraying Large Trees.

Apples That Bring Big Prices

HOW to Grow and Market Apples to Sell for \$3.37½ a Box," was the subject of an address delivered by Mr. W. F. Cash, of Underwood, Wash., at a meeting of fruit growers in British Columbia, at which a representative of THE CANADIAN HORTICULTURIST was present. The system used by the growers in the Hood River district of Oregon, was described as follows:

"We do not expect to grow high-class fruit on every tree. In the growing of stock, it is as necessary to select the scions from good bearing trees as it is

branches. Men follow with short ladders and remove the balance of the fruit.

"Most of our apples are packed in the orchard under the supervision of expert foremen. No packer is allowed to work by himself until he has packed for one season under an expert packer. Great care is taken not to bruise the fruit. We insist that the apples be handled individually when being delivered to the packer. Each apple is wiped clean and wrapped in paper. The boxes used are the standard size box, and a box one inch shorter and broader. The use of



A Plant for Boiling Lime-Sulphur Wash Operated on Cooperative Plan

necessary to select good parents in animal breeding. All that we expect from the nurseries is trees true to name. Some of the trees will be found to be better producers than the others. It is from these that we grow our own stock, a practice that is becoming common in the Hood River district. Our soil is of volcanic ash and sand, but we have found that, with the application of water, it will produce wonderful crops.

"We are confining ourselves to the growing of only a few varieties. By making a success of a few, the district becomes noted for those varieties. The varieties mostly grown are Spitzenburg, Newtown Pippin, Baldwin, Jonathan and the much-despised Ben Davis, which does well and commands as high a price as some other varieties.

"Several years ago we adopted the practice of low-heading our trees. It has many advantages over the old system. It enables us to have women and children pick the fruit from the lower

the two sizes enables us to pack the apples in the box best suited to the size of apple. Between each layer is placed a sheet of cardboard, unless the top layer is too high. We have found that apples packed on their sides do not ship as well as those packed on their ends; the sides seem to bruise easier.

"Last year our fruit was shipped to the Eastern States, and a large shipment was made to Russia. The prices paid in our district were \$1.90 a box for Baldwins, Ben Davis and Jonathan; \$2.75 for Newtown Pippin; and \$3.37½ for Spitzenburg. A few boxes of Winter Banana sold for \$8.00 a box. These prices were received F.O.B. cars.

"We estimate the cost of care and labor from the time the fruit sets until it is packed, to be fifty cents a box. The reputation of Hood River apples is so high that representatives come from points all over the world to buy fruit."

—W.G.R.

Operating a Boiler Plant

Joseph Tweddle, Fruitland, Ont.

Our lime-sulphur boiling plant is operated and managed by an association of seven members, as follows: R. H. Dewar, W. M. Orr and Son, Fred. Carpenter, Fred. Dewitt, Jos. Tweddle, Geo. Millen and C. W. Dewitt.

Each member paid in \$12.78 in stock to pay for the building of the plant. It is located in the orchard of the writer. It costs seventy-five cents a barrel to make the wash. This includes cost of material, fees for use of engine and wages of men operating. Each member is charged the same price for the mixture.

We engage one man with a threshing engine to run the plant. From a creek he pumps the water through the inspirator up into the upper boiling tank, which the water enters quite warm, then steam is turned on and brought to a boiling point. This tank holds four barrels, as also do the two lower tanks. Sixty pounds of fresh lime are thrown into one of the boiling tanks. Then fifty-six pounds of flour of sulphur are made into a paste with a little hot water.

This is added to the lime in the boiling tank and one barrel of boiling water is run in from the tank above. Then steam is turned on and the mixture is boiled vigorously for the greater part of an hour, when the tank is filled with boiling water from the upper tank. Rapid boiling is continued for the balance of the hour, when the batch of four barrels, or 160 gallons, is finished, making fifteen pounds of lime and 14 pounds of sulphur to each barrel. No salt is used.

This operation is repeated in the same way with the other tank. In this way forty to fifty barrels are boiled per day.

This next spring we will spray over one half a mile square of solid orchard and vineyard, and will defy San Jose or any other scale to dare to set foot on any part thereof.

Low-headed fruit trees are best. A better shaped head is secured and the fruit can be picked easier.—A. J. Dryden, Carlton, Ont.

Pruning Currants.—If planted far enough apart, not much pruning will be required until the fourth year. Let the bush spread, prune out when the limbs come so close together that they prevent the sun shining and the air circulating freely. All the limbs which grow down close to the ground should be removed, as the fruit should not be allowed to touch the ground. This pruning should be done before the leaves open in the spring.—Wm. Fleming, Owen Sound.

Difficulties in Spraying

Robt. Thompson, St. Catharines, Ontario

AS the season for spraying is rapidly approaching, we find many of our growers dreading the work of applying the lime and sulphur wash. In the preparation of this mixture, if there is no boiling plant nearby, and the grower wishes to prepare his material cheaply and efficiently, he can make a plank box about three or four feet wide, from five to seven feet long and twelve inches high. Secure a sheet of boiler plate that will project a couple of inches outside of box. Fasten the box to the sheet iron securely by means of screws through drilled holes.

strainer fifty meshes to the inch. Fine nozzles can then be used, and no trouble will be experienced from clogging. Better work can be done with small nozzles, and less material used.

Spray the first time about two-thirds of the tree from the windy side; then when there is a change of wind to one of the opposite quarters, the other third can be sprayed. A good breeze is found to be a good aid in spraying, especially for large trees. Be sure and cover every spot on the trees.

When spraying with Bordeaux mixture and poison for codling moth, see

obtained from the Shenandoah Nurseries, Shenandoah, Iowa, and other large wholesale nurseries.—W. T. Macoun.

Apples to Glasgow

Where are the best flavored apples grown in Ontario, and what prices do the growers get per barrel on the trees? What is the freight rate per carload of apples from Toronto to Montreal, and how many barrels are allowed to the car?—F. Paterson, Glasgow, Scotland.

The cost for freight and other charges, per barrel, from Ontario points to Glasgow, varies from 90 cents to \$1.10 per barrel. It is generally conceded that the district north of Lake Ontario, and including the central portion of Ontario to Lake Huron and the Georgian Bay, grows the best winter apples for commercial purposes. The capacity of cars varies from 150 to 200 barrels.

White Fly on House Plants

What can I do to get rid of a sort of louse that is ruining my house plants? They are like tiny white flies and cover the under side of the leaves with little eggs. When you touch the plants they fly off to others. They are especially bad on my fuchsias, heliotrope and nicotine, but do not molest geraniums or begonias. I have tried several remedies, but the pest seems to thrive and multiply at a great rate. Have washed the plants with tobacco water, soap suds, coal oil, and have had them smoked on, but all to no purpose?—J. W., Scarboro Jct., Ont.

The insect mentioned is probably what is known as the white fly, *Aleyrodes vaporariorum*, and is a comparatively new insect pest to plant growers. In greenhouses it can be easily kept down by the fumes of hydrocyanic gas. This latter must not, however, be used by amateur plant growers in a dwelling house under ordinary conditions, as the fumes are fatal to almost all animate life of any kind, hence it cannot be used without great danger to human life as well as insect life. A very strong solution of soapy water—one ounce of common soap dissolved in a quart of warm water and allowed to cool—is a good remedy. This should be sprinkled thoroughly on the underneath side of the foliage once or twice a week with a fine rubber sprinkler. Scollay's angle or bent nozzle rubber sprinkler is the best appliance for this purpose. It can be purchased at seed stores. After sprinkling, before the foliage is quite dry, dust on some Pyrethrum powder, or tobacco dust made from a dry cigar. This also should be dusted on the under side of the leaves, with a Jumbo Powder Gun, which can be purchased at seed stores. The soap solution has been used effectively by some florists in keeping down this pest in greenhouses. Keeping the under side of the foliage sprinkled with clear, tepid water as often as possible is a good preventive, as the fly delights in a dry atmosphere, and does not like moisture. In sprinkling, dampen all parts of the foliage and stems of plants.—Wm. Hunt, O.A.C., Guelph.



Government Power Sprayer at Work in Orchard of C. C. H. Eaton, Canard, Nova Scotia

A fire-place can be built of bricks so that the boiler plate will rest on brick-work. Leave open at end, and put in two or three lengths of stove pipe. Limbs or brush can be used for firing. This makes the cheapest place for boiling lime and sulphur. The back end of the box can be lowered a little, and a large faucet put in to run the liquid out of the pan.

For fifty gallons of mixture put fifteen gallons of water in the pan. Bring to a boil and add twenty-two pounds of good fresh lime. Have eighteen pounds of finely ground sulphur mixed to a paste previously in hot water. Pour this in on the lime. When the lime begins to slack, stir occasionally. Boil for one or two hours or until the mixture turns a greenish color. Keep boiling vigorously all the time. Add more water to make the fifty gallons. The last few gallons added may be of cold water so that the mixture, if going directly into the pump to be used, will not be boiling and thus injure the hose. Great care should be exercised in straining into the tank, using for the last straining a

that every leaf and twig is covered, and every apple covered so that the poison will have filled the calyx end of the fruit. Thoroughness in every particular is one of the secrets of success in spraying.

Stocks for Grafting

I intend planting an orchard of plums, apples and some peaches, the latter in a sheltered location, and am desirous of budding my own trees. What stocks are most hardy for this locality, and where can I procure seedlings for the purpose? Are the French Myrobolan and St. Julien seedling plum stocks used in Canada?—T. G., Mono Centre, Ont.

The Myrobolan and St. Julien stocks should both be hardy enough in your district. The former is, we believe, the stock most generally used by nurserymen. The apple seedlings used in the nursery trade should prove satisfactory. For peaches we should suggest using the Americana plum in your district, as they are hardier than the peach stock, and the peach unites readily with them. If seedling stocks cannot be obtained from Canadian nurserymen, and we have not seen any advertised, they could be

Bedding Plants, Where to Use Them*

RIDING through parks, along boulevards and country roads, speeding in trains through villages and towns all over the country, passing the magnificent palaces of the wealthy with their beautiful lawns and the humble cottages of the poor surrounded by modest yards, everywhere, during the growing season, the eyes meet the brightness of flowers and richly colored plants, which at once impress upon us the popularity and universal love for bedding plants.

There is such a large variety of these plants, from the smallest annual, like portulaca, to the stately sub-tropical plants. The perennials figure greatly in various effective displays. Then we have tulips, hyacinths, daffodils, and so forth, for early spring flowering. No garden need be without flowers from the time the dainty little crocuses peep out of the snow until late in fall.

No matter how small the purse, enough seed can be purchased to obtain a very harmonious and artistic effect, as well as a continuous season of flowers. It is not the means of being able to procure a large number of choice plants, but it is the good taste and skill of the designer, who understands how to make an arrangement, to harmoniously and discriminately combine the various colors with immediate surroundings, no matter how inexpensive, that appeals to the lover of nature with all its art and beauty, and this is what we are striving for more and more every day.

It requires just as much artistic judgment and ability to arrange flowers properly, as the painting of a picture on canvas. The designer must show individuality and know exactly what proportions the plants will attain, how soon they will be fully developed, also how the colors will blend together; in fact, he must see the finished picture before him when he designs his plans. We have everything to do it with; now let us understand how to do it. To cover the subject best, I have divided it into two chapters, as the title of this article indicates: "Where to use them and how to use them."

PROPER SELECTION OF PLACE ESSENTIAL

The proper selection of the place for the floral display is first to be considered; a place where it will be properly effective is just as important as the execution of the planting, as this takes a definite part in the entire scheme. Locality, building and size of grounds must be taken into consideration. The smaller the

place, the simpler should be the display. It is so easy to overcrowd a small front lawn, whereby the proper effect is entirely lost. Large places in proportion will have more elaborate paintings, and the artist will have occasion to plan special features, such as courtyards, parterres, sunken gardens, Italian gardens, and so forth.

The front of a building is almost always selected for the display, which is generally formal, and, if the space is limited, a narrow border of plants adjoining the building will be sufficient, with perhaps one or two beds on the lawn, proportional to the latter. There should always be plenty of green grass to offset the beds. The backyard, as a rule, is very much neglected and in many instances unsightly; here I would advocate to have a grass plot with a border plantation. How much more cheerful one would feel looking into a well-kept yard than at a lot of rubbish.

Places of larger dimensions, with their beautiful landscape effects, must be treated more in detail; here we have an opportunity to lay out in connection with residences, conservatories and public buildings, courtyards, parterres, rose gardens, and so on, which, as a general rule, are part of the architectural scheme and in harmony with the style of the building. In the last few years Italian gardens have again become quite popular, and these especially set apart from the rest of the landscape must be treated by themselves; they are very set and usually contain considerable color well blended together.

Besides the forms of special treatment already mentioned, we also have other flower gardens, which give an opportunity for a larger variety of flowering plants, in the line of annuals, roses and perennials, and so forth, which properly arranged make a brilliant effect without interfering with the more subdued and restful landscape.

IN CEMETERIES

A few words should be devoted to the homes of our loved dead. There is nothing more soothing to the grief-stricken heart than the sight of well-kept cemeteries, bedded with appropriate flowers speaking the language of peace and rest.

PARKS AND FACTORY GROUNDS

Public parks, especially, are a great field for floral displays, and although some authorities on landscape gardening do not favor them, I believe the public fully appreciate flowers; though the utmost care must be taken not to let them run wild all over the park, but keep them in the vicinity of buildings or entirely away and screened off from the quiet landscape. Boulevards also and

small squares can be most admirably brightened with the ornamentation of flower beds.

FLOWER BOXES

How many people are not fortunate enough to possess a home with a lawn and flower beds! There is no necessity to deprive themselves of nature's gifts, but they can enjoy them in a more modest way, by keeping flower boxes, which, no matter how obscure and unassuming the dwelling, give it a home-like air and enliven the aspect of many an otherwise sombre home. On the other hand, many beautiful residences rely solely upon piazza boxes for their floral display and exquisite results can be obtained in this manner.

Making a Tennis Court

T. McVittie, Toronto

In making a lawn tennis court, there should be a clear margin of at least twelve feet on each side and twenty-one feet at each end of the court. When the ground is selected, measure off a portion, say 100 by 50 feet, which will allow ample margin. The portion for playing on requires only seventy-eight by thirty-six feet. If economy must be considered, only the latter need be carefully prepared, but it is better to do the whole if possible.

The ground which is to be turfed is best prepared previously. Carefully remove the weeds from the turves. If it is very poor, work in a dressing of decayed manure, taking care not to have it rank. Make it perfectly level and evenly balanced by means of a straight edge and a spirit level. The whole plot should be made very firm with a rammer or the back of a spade. Scratch it over with a rake, lay the edges of the turves close together and ram thoroughly.

If grass seed is to be sown, see that it is good by purchasing from a reliable firm. I prefer turfing, if sods can be procured free from weeds.

During the season the grass should be kept cut very close and the court afterwards rolled well with a heavy roller.

To have extra early cucumbers for slicing, start the seed in hotbeds in March.

Sow seeds of nasturtiums in pots or boxes, but do not sow thickly, as nasturtiums do not transplant readily. Early flowers of mignonette may be had by sowing the seeds in pots; also, petunias, verbenas, cosmos and lobelia.

* Extracts from a paper read by Mr. Alois Frey, Chicago, at the last convention of the Society of American Florists and Ornamental Horticulturists. Valuable suggestions are given that are applicable to Canadian parks and home gardens. In the next issue the question of how to use bedding plants will be discussed.

What Amateurs Can Do in March

THERE are many things that amateurs can do before the busy season actually begins. Order your seeds, trees, plants, fertilizers, tools and spraying outfit. A better garden can be had by planning now than later. By ordering early you will get your trees and plants as soon as the weather is safe for shipping. Look over the old tools; repair those that need it, and sharpen all.

In the localities where the snow leaves early, considerable work can be done on the lawn and in the garden. The lawn may be raked, fertilized and rolled; bare spots can be sodded. Walks and drives

WITH THE FRUITS

If you have some old fruit trees of worthless varieties, graft them with scions taken from trees of desirable varieties. They will bear in about three years.

Prune currants, gooseberries, raspberries and blackberries. Currants and gooseberries produce their fruit on wood that is at least two years old. When pruning remove only a portion of the old wood, and allow a similar number of new branches to take their places. If you did not do so last fall, remove the old wood from the raspberries and black-

know same, send specimens with descriptive notes to THE CANADIAN HORTICULTURIST.

IN THE VEGETABLE GARDEN

A hotbed or cold frame is useful in the kitchen garden. The material for it soon should be in course of preparation. Fresh manure should be placed in a heap for ten days or so, and turned once during that time. A hotbed or cold frame is useful for starting early vegetables. Sometimes four to six weeks may be gained in hotbeds, and two to four weeks in cold frames. If you have neither of these, start some vegetables in boxes on the window-sill.

Home-grown rhubarb may be had early by placing a barrel or box, from which the top and bottom have been removed, over a clump of rhubarb in the garden. Cover the top at night and during cold days.

Beds of asparagus and rhubarb may be manured. If manure is not available, use nitrate of soda at the rate of one ounce to the square yard. Rake it in and repeat the dose three weeks later.

If you are burning wood in the house stove or furnace save the ashes for fertilizer. Keep the pile dry. Even coal ashes are useful. They supply practically no plant food, but improve the texture of the soil.

If the soil in the vegetable garden is heavy, it would be well to buy sand to lighten it. An application of lime or strawy manure also would aid in loosening a clay soil.

THE OUTDOOR FLOWER GARDEN

Do not remove the cover from bulb beds until danger of severe frost is over. Remove by degrees. It is best to leave the mulching near by, so that it can be replaced when severe weather threatens.

Plan to rearrange the hardy border and to fill the gaps. The effect of alternate thawing and freezing is very trying for plant life out-of-doors. If the ground is frozen, there is still time to give some protection. Cover with some strawy manure held in place by branches of trees. Remove the covering as soon as danger of severe frost is past.

FLOWERS INDOORS

Late in March repot the hardiest kinds of window plants, such as geraniums, ferns, and plants required for summer decoration. Water them thoroughly so that all the soil in the pot is moistened.

Flowering bulbs should have plenty of water when in flower. When the flowers have faded, the bulbs will be of little or no use for pot culture another year. They may be removed to the garden, however, and will make a useful addition to the border.

After freesias have finished flowering dry them off slowly. They should be



A Well-made and Well-kept Tennis Court

At residence of Mr. A. Alexander, Hamilton

can be graded and rolled; apply fresh gravel where needed. Remove from the lawn, garden and walks all the rubbish that was left over winter.

Repair all holes in tree trunks by removing the rotten wood, singeing the cut surfaces, and filling with cement.

Birds kill insects and add much to the charm and pleasure one can have in the garden. Make houses for them.

Remove all dead wood from trees, shrubs and vines; if overgrown, they may be thinned out. Most shrubs require very little pruning. Late-flowering shrubs may be pruned while dormant. Early flowering shrubs should not be pruned until they have bloomed, as they will produce their flowers on twigs that were formed last season. Hardy roses may be pruned towards the end of the month.

berries. Thin out the new canes, and cut them back to about three and a half feet.

Prune the fruit trees. Thin out the apple and cherry trees. The growth produced last season on peach, pear and plum trees should be headed back.

Prune the grape vines after the severe weather is over, and before vegetation begins, so that they will not bleed too profusely.

Much trouble with insects and fungous pests can be averted by action now. Destroy the egg masses of tent caterpillar, cocoons of fall webworm, and the winter stages of all injurious insects that you may happen to come across. If you happen to find an insect or fungous disease on your trees, no matter what the stage of its life cycle, and do not

kept dry in the pots until next season.

Bring to the light hydrangeas, oleanders and similar plants, and start them into growth. If necessary, put them into larger pots or tubs.

Pot flowering and foliage begonias. Give good drainage and water thoroughly, then withhold water until the plants have well started into growth.

Strike in sand, cuttings of fuchsias, geraniums, verbenas, and so forth.

Plan to keep a record of all the operations that you perform indoors or in the outdoor garden during the coming season. Have some photographs taken of your work and results. Then write an experience letter for THE CANADIAN HORTICULTURIST, and send the photographs for publication.

Imantophyllums

Annie L. Jack, Chateaugay Basin, Que.

Living in the same pot year after year for the past ten years, and never failing to bloom all through the three winter months, when flowers are most valued, are bulbs of the above named. The invariable question of those who see my plant window for the first time is: "What is it"? and I often answer that it has too long a name for one



Imantophyllum Nobiles

Showing spike of flowers and seed ovaries on former flower-stem. Grown at O.A.C., Guelph, by Wm. Hunt.

breath, being of thirteen letters. But it is often claimed by good authority that "*Clivea nobilis*" is synonymous as a title, being named after the Duchess of Northumberland, who was a member of the Clive family, and a plant enthusiast in her day.

The imantophyllums were introduced from Africa, and do well in an ordinary living room, or greenhouse, with even winter heating. They adapt themselves

to any condition, and if the resting season is made in summer (leaving the bulbs in the pot in a warm corner) they will bloom at the opposite season, when watered and brought to the light.

They have the valuable quality of remaining long in bloom and are more



In This Border Six Courses of Bloom were Had Last Season

easily managed than the popular amaryllis which requires much the same treatment. A heavy, rich soil, with some coarse sand, is the best mixture. While growing, they require a liberal supply of water. The window gardener who has a fancy for plants of unusual appearance and stately beauty, with handsome foliage, will do well to cultivate the imantophyllums in spite of the formidable name.

Begonia Curiosity.—A lover of flowers recently showed *The Thorold Post* something of a curiosity. It was a begonia plant which had been resting during the winter, and had a long, sturdy trunk but very little foliage. While set away, the trunk had curled around just above the pot into a perfect circle, or loop, three inches in diameter, about the size of and very much resembling a doughnut. The loop hung gracefully over the edge of the pot, and the plant was healthy and promising. When put away the trunk was mostly straight, and was not touched while in seclusion. Can some nature student explain the phenomenon?

Every one knows in a general way, many from experience, that evergreens need more care in planting than deciduous trees. The reason is that the sap of evergreens, being of a resinous nature will not flow afresh if dried out; or, at least, not so easily as the sap of deciduous sorts. The roots must never be allowed to dry.

Six Courses of Bloom

A. Barber, Bowmanville, Ont.

The accompanying illustration shows the sixth course of bloom produced last season in the border shown. The little tot in the foreground is busy with one of Groff's best gladioli, even though she

may appear to be quite young for plant study.

In order to give flower lovers an idea of what may be done with a small area, it may be of interest to mention briefly the results that I have secured with the border illustrated. First, in spring I have about 200 to 300 snowdrops, which show as soon or before the snow disappears. These are followed quickly by about 100 crocuses, and then come about 100 scillas, cheery little blue flowers that should be grown in abundance by amateurs. Next comes the hyacinths, and last in the bulb line, the tulips. Of the latter I have three varieties, Cottage Maid, Proserpine, and in the rear, Darwins.

After the tulips are done the ground is cleaned a little, and filled with standards for the summer. When the photograph was taken there were alyssum in the front, asters next, and geraniums in the rear. Throughout the entire season, therefore, the border presented a pleasing display.

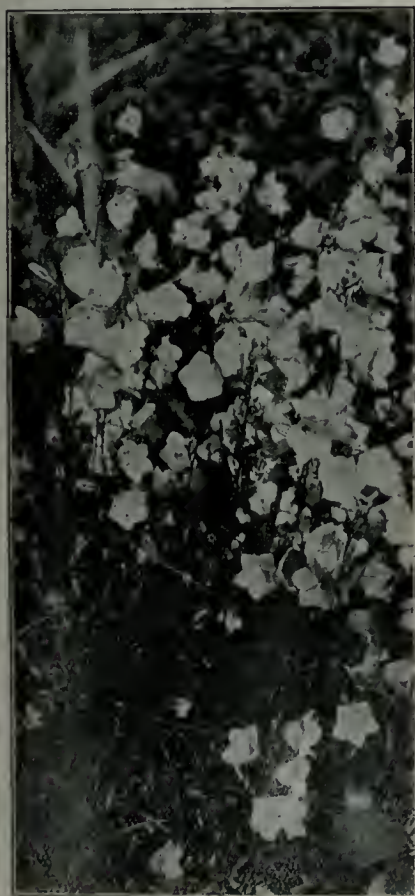
Asparagus grows readily from seed. One ounce of seed is sufficient for about fifty feet of drill, and should produce about 400 plants.

The columns of THE CANADIAN HORTICULTURIST are open at all times for letters and articles from its readers relating experiences in the management of fruit trees, small fruits, vegetables, flower gardens, lawns, shrubbery, and so forth.

Herbaceous Plants for the Amateur

J. McPherson Ross, Toronto

I DO not know of any class of ornamental plants more useful and suitable for the amateur to try his or her skill in growing than the herbaceous perennials. I might say that, as a class, they do not receive the attention that their beauty and value deserve, more attention being paid to bedding out plants and annuals; but this neglect is passing away, and even professional florists are paying attention to their cultivation in a much more lively manner than formerly. To the amateur they are particularly desirable, being perfectly hardy, easy of cultivation and, once planted, they are permanent. They possess a dignity and force which no annuals have, and are as effective and beautiful in color as one could desire.



A Nice Clump of Campanula

The best method of planting them is in groups or masses. This is nature's plan of growing anything. She is always prodigal when she does the planting, and although she does not sometimes suit our convenience as to where she does plant, yet the effect is always charming if the masses are only the commonest weeds, such as burdocks, thistles or dandelions.

Whatever planting you may do, aim to make it impressive, aim to make an effect, aim to make a picture, so that the eye of the least observant may be struck by its beauty, and the sensation of pleasure produced may linger long in the memory after the scene has passed from their view. How often have we heard such expressions as: "Oh! What a beautiful mass of lilies," or "What a show of gladioli!" This is the result of effective planting.

Group whatever you plant in masses without definite form. *Always* avoid circles, or squares, or rows, and by keeping this in mind when planting you suggest the effect of the plants growing and spreading naturally. Art is most effective when best concealed. The average effect of planting is meaningless. The beauty of the whole is lost in so much detail or, in other words, a great deal of the public indifference to herbaceous plants is owing to this indiscriminate planting, this hit and miss style, that has prevailed in the past.

KINDS TO PLANT

For the amateur's sake we are going to recommend only a few varieties, as we know that the average amateur is always ambitious and would like to plant everything he finds in the catalog. Have patience and *make haste slowly*. Try the simplest and easiest of cultivation at first, then as you gain in experience and skill from the cultivation of the few, you may proceed in joy and confidence to the many. Do not forget the effect already mentioned. It is gained only by planting a group of three or four or half a dozen of one kind. Never a single specimen. It would be better as a whole to plant twenty-five plants of a single variety than to plant single specimens of twenty-five varieties.

BLEEDING HEART

One of the easiest of all herbaceous plants to grow is the bleeding heart or dielytra—thrives in any situation, is handsome in foliage, perfectly hardy, coming into bloom very early in spring, is beautiful when in flower. The plant itself attains quite a size. When fully grown it stands over three feet, and quite ample in circumference. Covered with its long racemes of pendant pink and white flowers it is a charming plant as a single specimen on the lawn and presents, as a group of four or five plants, quite a formidable mass of foliage and flowers. A group like this would perhaps take up too much space in small gardens, but, in large areas, it appears to great advantage. It increases easily by division of the roots

and makes a beautiful pot plant when forced under glass.

PERENNIAL PHLOX

The next to recommend is the perennial phlox. If I were confined to a



Give Columbines a Place in the Garden

choice of only one plant for my garden, I would select the phlox. Of this plant there are two classes—tall growing and dwarf growing. There are countless varieties of this beautiful free-blooming flower. To get a selection the amateur is advised to go to his nearest florist and get his list. The most effective colors are white and pink. Plant the tall varieties in the centre or at the back of the bed and keep the dwarf kinds for the front or outside. This arrangement would produce a bank of bloom. The phlox comes early into flower. The dwarf phlox is one of the earliest of gardening flowers, and is a welcome plant when it does bloom after the dreary season of winter. I have reference, however, mainly to the other classes whose flowering season extends nearly over the summer. If the flowering spikes are cut back there will come a lateral growth of flowering spikes which prolongs their flowering season. The phlox requires dividing and replanting every three or four years. If left any longer it rapidly deteriorates in size of floret and in beauty of color.

Next to the phlox we have the *pæony*, the rhododendron of Canadian gardens.

Hardest of the hardy, magnificent in color and prodigious in flower, no one can help admiring the pæony. If there is a fault to the pæony it is the short time it remains in bloom, but the compact habit of the plant, with the dark green peculiarly divided foliage, makes some amends for it. As a single plant on the lawn it is grand; in a mass of twenty or thirty plants it is magnificent. It stands our coldest winters with impunity (it is a native of Siberia), and once planted, grows finer every year, increasing in size and flowering qualities the longer it is undisturbed.

HOLLYHOCKS

No amateur can afford to be without the hollyhock. Whether single or double it is always delightful. Its flowers embrace the whole scale of color from white to deeper than black. Planted in groups of a half dozen it attracts attention wherever it is, and its stately spikes lend grace and beauty to either cottage or hall. Though the hollyhock is, properly speaking, more of a biennial than a perennial, yet with but little attention a goodly supply of young plants may be always kept up, by layering the offshoots.

THE LARKSPUR

The larkspur or delphinium is the most beautiful blue flower grown as a hardy plant, with the exception of *Salvia patens*, but the salvia is not one to be recommended to the amateur till he has had a few years' more experience, as it is rather tender. There are numerous varieties of the larkspur, in all shades of lavender, mauve and a lot of indefinite tints, but I love the deep blue variety in preference to any of the others. The tall spikes of larkspur are always charming. Springing from the encircling cluster of its graceful lacinated foliage, they reach a height of five to six feet. It blooms in all stages of advancement, from the perfect open flower to the tiny green bud higher up just asserting itself.

GOLDEN GLOW

If the larkspur suggests the sky the rudbeckia suggests the sunlight. As a hardy, showy flower the rudbeckia has come to stay. Of the freest habit in blooming, its tall spikes of golden-yellow flowers light up a garden like a burst of sunshine. It is an exceedingly effective plant in the back portions of the garden. For hiding fences or objects of ugly prominence, the rudbeckia plays a kindly part.

CAMPANULAS, SPIRÆAS AND AQUILEGIAS

The foregoing plants are nearly all of a robust and tall habit, therefore we want some a little more modest but not less sweet and desirable as a contrast. The campanulas or canterbury bells are a beautiful family of free flowering habit. In colors, violet and white, they are always a charming addition to a

collection. Of the spiræas we must have *Spiræa Ulmaria*, *S. lobata*, and *S. Filipendula*. Lovely in foliage, with their creamy white blooms balanced on slender stems, the spiræas are indispensable, especially the one last mentioned.

The aquilegias or columbines also deserve a place in our herbaceous border. They are free growing, profuse in flowering and covering a great range in colors, white, cream, flesh, mauve, purple, brown, crimson and yellow—no painter's palette could be spread with more varying or contrasting tints than the graceful columbine yields us.

IRIS AND SOME LILIES

We must have half a dozen of the iris in its varying varieties, and its rush-like

plants, I have reserved a half-shaded corner for a clump of lily of the valley, that exquisite lovely little flower, so graceful and sweet in flower and foliage.

SOIL, CULTURE AND CARE

Any combination of the foregoing plants are suitable for the amateur. Good clean soil, well fertilized with old rotted manure, will suit them all; it should be well drained and the border so graded that no water will lay on it at any time. Most of the plants will thrive in any kind of soil, but they all do better under the best conditions. Good clean cultivation should be given after planting, keeping the soil free of weeds and loose on top.



An Informal Grouping of Foxgloves is Effective

Photograph taken at residence of Mr. A. Alexander, Hamilton

foliage; it is hardy and beautiful. The funkia, plantain lily, most effective in clumps and distinct in flower, is always pleasing and unique.

A dozen more plants are clamoring to get into our border; all of them choice company and move in the best circles, but we have not time to introduce them as they deserve to be introduced, and they must stand aside for Lady Candidum. I beg her pardon, Miss *Lilium candidum*, the white queen of the border. We must have a clump of this lovely flower and, to do so, will plant the bulbs in August or early in September. This plant makes it roots early in fall so as to produce flowers in early summer.

We have room for one strong, showy plant, a veritable bonfire when alight, *Papaver Orientalis*, the Chinese poppy. This is a free growing plant with prodigious paperlike blossoms of intense crimson scarlet.

At the risk of offending the tradescantias, achilleas, and all other deserving

Aim to keep your borders neat by not allowing old flowering stalks or dead foliage to remain. Keep the soil nicely raked. Grounds that are kept in order go a great way sometimes in making amends for the lack of other qualities.

Keep the plants in groups as already suggested, and plant in vacant places or intersperse as it were with annuals, gladioli, or anything that will give a wealth of foliage and flower. This creates what may be termed an "informal flower garden." A prevailing charm about this kind of planting is the surprises one meets with in contrast to the ordinary ribbon bed, where one sees at a glance the whole effect, no matter how beautiful, but, in the herbaceous border, interesting surprises are met with at every step.

When the flowering season is over, cut down all the old flowering stalks and dead foliage and lay on the ground as a protection to your plants; if not enough to cover all, add leaves, strawy manure or other litter that will cover the

soil and prevent too hard freezing or upheaval of the plants.

All the plants mentioned may be grown from seed sown as soon as ripe, but this takes trouble and is, more properly speaking, the business of the professional florist. They are all so easily grown by division that it does not pay for the trouble of growing them from seed.

In conclusion let me advise the amateur to love his garden and also to cultivate patience at the same time

he or she is cultivating the plants. As amateurs grow in patience, skill and love, so will their success be. The quality of happiness is not governed by the size of the garden, but rather lies in the heart of the grower. A solitary plant in an old box may yield more pleasure to its owner than extensive lawns and conservatories may to another. Seek to cultivate in yourself a delight in your flowers and all the other joys will be added unto you

Daffodils Singly in Pots

G. A. Chase, Toronto

NOW that the blooming season for home-grown plants has come, I would like to make a plea for individual daffodils in small pots. Our city dealers rarely have any other than the cut blooms, and if by chance they have a few pots, they are large, each containing five or six plants, in strict accord with the rule in the seedsmen's catalogs, "plant five or six bulbs in a pot."

I have no fault to find with those who, in buying daffodils, look only to the mass of rich bright color that a bunch of cut blooms or a crowded pot will give. But to the lover of daffodils, mere color is not enough; he wants the flower itself to fill the eye, its lovely form and delicate tracery, as well as its color, standing out full and clear against the dark, rich foliage. This he cannot have in a bunch of cut blooms or in a crowded pot, for in these, the single flower is lost in the mass and foliage is either absent or scanty and sickly.

I would urge the professional growers of daffodils to try the experiment of growing some single bulbs in four-inch pots. It certainly will pay; for while a six-inch pot or a pan with its six bulbs in bloom sells in the shops for twenty-five cents, the smaller pot, with its one bulb, will readily sell for eight or ten cents, a price that will give a much greater profit, all differences in growing being allowed for, than will the six-inch pots.

The bulbs grow well in these small pots and throw up a fine body of foliage; and when, as is usually the case, there is a secondary bulb (sometimes two of them) attached to the main one, two blooms will be produced, the one from the main bulb usually being on a somewhat larger stalk and opening from two to three days earlier. A flower such as this, sitting in a jardiniere, makes an effective, though unobtrusive centerpiece for the family table, and a very pretty ornament for the mantel or elsewhere; and when placed a few inches in front of a mirror, the effect is beauti-

ful. To the home grower, who, like myself, has no other greenhouse than the window and its attached shelf, the



A Home-grown Daffodil

When grown singly in pots fine large blooms are secured. The one illustrated is about two-thirds natural size.

small pot needs no recommendations. Nor need any lice be feared if only the simple precaution be taken of half-boiling and half-baking the earth before the bulbs are potted.

Trouble with Rubber Plant

What is the matter with my rubber plant, and what can I do to get rid of the trouble and make it a clean, healthy plant? It is about two and a half feet high. The lower leaves are cracked, and where they crack they turn brown. On other leaves there are brown spots which keep getting larger, also a mass of little brown spots like scale or blisters. On some others there are black spots, a little larger than a pin's head.—Subscriber, Orillia, Ont.

The cracked leaves and brown spots

on leaves are caused probably by imperfect root conditions, or perhaps the soil has been allowed to become too dry at some time or other. If the pot is full of roots, repot the plant into a one or two sized larger pot, using a little lump charcoal, broken flower pot, or coal cinder for drainage, and a soil composed of one part sand and five or six parts of enriched loamy potting soil. Imperfect drainage or sour soil would also cause the trouble mentioned. Repotting and removing some of the old soil is the remedy for the last named trouble. A blister-like substance on the leaves is sometimes caused by either of the above conditions, or exposure to the sun in very hot weather. The small black spots probably proceed from imperfect root conditions. Re-potting into fresh soil is the remedy, unless these spots and the mass of little brown spots are really scale. If they are, they can be easily removed by washing the scale off with a strong solution of common soap and water, applied with a brush or sponge. The leaves should be sponged with clear tepid water after using the soap solution. Sponging the leaves once a week with clear tepid water, or spraying with the same, is good for the rubber plant at any time. A small, thin, almost black insect, about a quarter of an inch in length, called "thrip," often attacks the under side of the leaves of the rubber plant. Where attacked, the leaves assume a whitish appearance. Washing the affected parts with a strong solution of soap and tobacco water is a good remedy for thrip. A too dry atmosphere induces the thrip to appear.—Wm. Hunt, O.A.C., Guelph.

Ashes for Vegetables

Are wood ashes good to use for all kinds of vegetables? Are they good for clay and loam? How much should be used per acre? I have the chance of buying about 1,500 bushels at five cents a bushel. Will it pay?—Arthur T. Smith, Hartington, Ont.

Wood ashes contain potash, phosphoric acid, and lime, all of which are useful in the growing of vegetables. The ashes are usually valued more for the potash which they contain than either of the other two constituents, for vegetables require potash more than lime or phosphoric acid. On clay soils, lime has an additional advantage in that it liberates potash from the soil. Thus the ashes will supply potash direct and lime will liberate it from the insoluble combinations in the soil. If you can buy wood ashes that have not been leached, and of which you know something of the history, for five cents per bushel, they will make a very cheap form of fertilizer. For vegetable crops you may safely apply these at the rate of a ton to a ton and a half per acre.—Prof. R. Harcourt, O.A.C., Guelph.

Growing Early Tomatoes

Frank F. Reeves, Humber Bay, Ontario

TO produce early tomatoes for market, the seed should be sown about the last week in February or the first week in March. The varieties will depend largely on what your market demands. We use for early: Earliana, McInnes Plentiful, Dwarf Stone and Chalk's Jewel, to be followed by Perfection and Imperial.

The seed should be sown thickly in flats. As soon as the plants are about an inch high, they should be pricked out in flats, giving each plant about an inch of space. This transplanting should be done three or four times, each time giving the plants more room. The oftener they are moved the stouter will the plants be and more abundant the small roots; this enables us to move the plants without checking them. For the last move, I like to use strawberry boxes, as when planting out, these can be broken easily.

One great thing to avoid with tomatoes in the greenhouse is too much water. If the plants are watered frequently they grow too rapidly and are soft. The best way is to let them get thoroughly dry and then give them a good soaking.

Care should be taken to have the plants thoroughly hardened before planting out. The best way to do this is with

canvas lights, removing the canvas every day, only covering when there is danger of frost.

To get the first early tomatoes, all the side shoots should be pinched out as they appear. These can then be planted out close together, two by two feet, and staked. The best ground for early tomatoes is a sandy loam, with a gravel subsoil.

The majority of growers who go in for mixed gardening make a mistake in having the land too heavily manured for tomatoes; the consequence is that they have all vine and no fruit.

To allow room for picking, they should be planted at least four feet apart each way. This will allow of their being scuffled close both ways, and will save hand labor.

In the vicinity of Toronto, planting is usually done during the last week in May or the first week in June, or as soon as danger from frost is over. The ground should be scuffled every two weeks to keep down weeds and to keep the plants growing.

The worst pest that attacks the tomato is the leaf blight. This can be controlled largely by using Bordeaux mixture, starting with the plants when in the seed-bed and giving two or three applications after planting out.

of the year, retain their clear white color, with little or no artificial blanching.

4. Late cauliflower is less subject to insect enemies. Cabbage worms and plant lice are much less troublesome late in the season than early, while cut-worms do not attack plants that are set after the first of July.

Tomato Culture*

R. H. Lewis, Hamilton, Ont.

For early tomatoes start the seed in March. The date will depend upon the locality. In the Hamilton district, it is from March 1 to 15. Sow in drills, four inches apart, in hotbeds. Earliana is the best variety. The young plants should be transplanted twice, the first time to four inches apart, and the second to six inches. Keep the plants growing without a check. Spray with Bordeaux mixture to prevent injury from fungi.

Plant early varieties outdoors about May 15 to 20. Before removing from the hotbeds, soak the soil well with water, then remove in boxes and plant with a spade. Place the plants about four to five feet apart. The land should be fairly rich for the early varieties. For best results, it should be prepared and manured during the fall previous. When planting, it is necessary to use a marker. This may be done by hand or with a horse, depending upon the area to be planted.

The seed for late tomatoes should be sown about two weeks later than recommended for the early ones. These should be transplanted once to four inches apart. The land for late tomatoes should not be too rich or vine will be produced at the expense of fruit. The leading varieties are Stone and Success. The former is the better for long distance shipping but is not so productive.

Sixty Tomatoes From a Plant

Editor, THE CANADIAN HORTICULTURIST: I had, last summer, an extraordinary crop of tomatoes. I was given one tomato plant by a friend, the seed of which came from California. I planted it in my garden along with other tomato plants. The products of the one plant were about as follows: The largest tomato weighed one pound, thirteen ounces, and the sixteen largest tomatoes weighed seventeen pounds. Sixteen others would average half a pound each. The balance were ordinary size. There were scarcely any that would be called small. The one plant produced about sixty fruits all told.

I saved the seed from the earliest and best of the fruit, and shall try again this year. I would like to hear from any one who can beat this from one single plant.—J. N. Collier, Hespler, Ont.

*A portion of an address delivered at a recent meeting of the Toronto branch of the Ontario Vegetable Growers' Association.

Late Cauliflower

John N. Watts, Portsmouth, Ontario

THE success of cauliflower growing depends largely on four things, namely, the season, the condition of the soil, the condition of the plants, and on procuring a first-class strain of seed. In Ontario, where summer droughts are frequently a feature of the climate, the time of the year during which cauliflower may head successfully is limited to an indefinite period. Often there are only a few weeks between the beginning of the fall rains and the setting in of winter. It becomes, therefore, a matter of first importance to set the plants at such a time that the heads shall mature during this favorable season.

It is easy to grow cauliflowers, but to get them to head at a time when the heads will be of the best quality, requires an amount of judgment and experience which, particularly in the western part of the province, have thus far prevented the general and successful cultivation of this vegetable. In fact, the growing of cauliflower in this country has attained but temporary and local success, owing to the generally unfavorable soil and climate or seasons. Within the limits of almost every province, or even

neighborhood, these conditions vary so much as to render it necessary for a grower of cauliflower to make a careful study of local conditions.

Cauliflowers will not grow in soil unless it is properly underdrained, unless the soil is naturally loose and free from all waxy nature. The land must be well manured with well-rotted manure, thoroughly mixed with the soil before the plants are set out. Fall plowing is best followed by good, deep cultivation in spring.

ADVANTAGES OF A LATE CROP

Growers should plan to have the cauliflower crop head late in the season. The advantages of this should impress growers who want profit. They are as follows:

1. The heads do not mature so rapidly as in warm weather, but come along a few at a time, giving better opportunity to get them to market.

2. They can be kept longer after being cut, and thus may be shipped to a distant market without wilting or heating.

3. The heads are of better quality, firmer in texture, milder in flavor, and, owing to the cool and often cloudy weather which prevails at that season

How to Grow Melons that Bring Big Money*

J. T. Gorman, Outremont, Quebec

WE prefer a light soil, and high ground so as to prevent water from getting underneath. Our hotbeds are six by twelve feet, three sashes. The seed is sown in a hotbed in the beginning of April in drills six inches apart, and when the third leaf begins to show, the young plants are

stopping that they receive. In planting, remove the pot carefully, place the plants in the centre of each light, leaving two or three inches of earth over the manure; pack the soil well around the plants, and water; this is the only hard watering that we give them. As they require it during the

to one side, and throw in sufficient earth to level off the beds. Repeat the same operation on the other side and train out the vines, pinching out the centre or top of each vine. This is the second stopping.

By this time, the space between the beds requires attention. This we dig or plow and level in such a manner as to have a fall to the centre between the frames. As the beds begin to fill with vines, they require to be let out. We take off the sashes, raise the frames about a foot, and train out the vines carefully, again pinching back the tops. This is the last stopping they receive. Place four blocks or flat stones, one at each corner, to receive the frame; this leaves a space of three or four inches and prevents the vines from being crushed. Replace the sashes and air as usual.

By this time, most of the melons have set, and as they begin to swell and net, they should be turned, not completely around, but just enough to relieve the part that rests on the earth and in such a manner as not to bring the exposed part in direct contact with the sun. This process of turning is very important and should be done at least once a week throughout the season. About a week or less, as near as we can judge, before the fruit begins to ripen, we remove the sashes and frames, store them away and train out any vines that may require it.

In marketing the melons, we are careful not to have any of them over-ripe.

Hotbeds Used by Mr. Gorman for Growing Melons

ready for potting. We use five-inch pots, two plants to a pot, and place or plunge them in another bed which has been made for the purpose. Care should be taken to shade them for two or three days to prevent wilting.

To the place where they are to be set out or grown, we give a liberal dressing of well-rotted manure and plow in, after which we dig the trenches; these trenches are made in rows twelve to fifteen feet apart, and eighteen to twenty inches deep, the same in width. When the time comes for planting out, say the first week in May, we fill these trenches with well-heated horse manure, packed firmly and level off to the surface of the soil. We then put on the beds or frames two or three feet apart in the rows, being careful to have the manure in the centre of each bed lengthwise. Next day, we fill in the earth. This we take from both sides of the frame and throw in the centre of each bed, right over the manure. If this work is done in the morning, they are ready for planting that afternoon, which is the best time to plant, about four o'clock.

Before planting we water the plants thoroughly and pinch out the top or centre of each plant; this is the first

season, we pull back the sashes for favorable showers, being careful to replace them the same evening.

Airing is also very important. This is done about eight o'clock every morning, closing down around five in



The Famous Gorman Melons as They Appear in the Field

the afternoon, so as to retain sufficient heat to do them over night.

When the plants begin to run, that is when the plants are from a foot and one-half to two feet long, they require earthing. To do this, we take off the sashes, remove any weeds that may have started, turn the vines over

To prevent this we go over the patch every morning, and should it be a very warm day, we place them in the storehouse in the evening and ship or dispose of them every day.

In the next issue an article will appear on growing tomatoes in pots.

* A portion of an address given at last convention of the Ontario Vegetable Growers' Association.

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We want the readers of THE CANADIAN HORTICULTURIST to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason to believe that any of our advertisers are unreliable, even in the slightest degree, we will discontinue immediately the publication of their advertisements in THE HORTICULTURIST. Should the circumstances warrant we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words "I saw your ad. in THE CANADIAN HORTICULTURIST." Complaints should be sent to us as soon as possible after reason for dissatisfaction has been found.

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EDITORIAL

CHANGE OF ADDRESS

Beginning with the April issue, THE CANADIAN HORTICULTURIST will be published in Peterboro. The change will ensure better service for our readers. Owing to a material decrease in the cost of printing and other expenses, we will be in a position to make improvements now that could not be accomplished until a later date were THE CANADIAN HORTICULTURIST to remain in Toronto. While the place of printing and the business and editorial offices will be in Peterboro, we will also have an office in Toronto at the old address, 508 Manning Chambers, 72 Queen St. West. Our friends are invited to visit us either in Peterboro or Toronto. With their assistance in the future, as in the past, we shall turn out a stronger, more interesting and better paper than ever.

THE APPLE SITUATION

The apple business of 1907-08 presents many interesting features and teaches some lessons. At present apples in storage for re-packing are being hurried out rapidly. The estimated 420,000 barrels in storage in Ontario at the beginning of the re-packing season, has dwindled away to less than half that quantity. The fruit has kept fairly well so far, but there is great danger of depreciation in keeping qualities for late holding, owing to that fact that large quantities of our best fruit were frosted while on the trees.

The prices realized during the past two months must mean disaster to some dealers. The wonder is, "How did it all happen?" Of course, as usual, there are some wise ones who say, "I knew it would happen," and "I told you so." It is doubtful, however, if even the wise fellows will profit by this season's experience, when July comes around once again.

While many causes contributed towards the bad results, the principal one is the fact that fully sixty per cent. of the crop could be classed as No. 2, or a lower grade. While under usual conditions only twenty-five to thirty per cent. of No. 2 grade, free from trash, will find a paying market in Great Britain, more than twice that percentage has gone forward this season, as well as thousands of barrels of absolute trash, marked No. 3. These shipments have completely demoralized the demand for the lower grades.

It is safe to say that twenty-five per cent., or at least 100,000 barrels of the apples that were placed in storage for re-packing, could be called nothing more than absolute trash. If the dealers had been given this stuff free of cost, at the prices it has sold for, they would lose more than a dollar a barrel.

The first crash in the market was caused largely by the fact that an oversupply of inferior and frosted fruit was rushed on the market. This gave the impression not only that the general quality was inferior, but also that the fruit was badly injured by frost.

Mr. A. McNeill, Chief, Fruit Division, Ottawa, reports that the apple situation is assuming somewhat serious proportions with the buyers in Nova Scotia. The returns in some cases are showing from 50 cents to \$1.00 a barrel less than the price paid for the fruit.

It is estimated that there are over 100,000 barrels still in store in the valley, including some rather poor stock. The Baldwins and Greenings are turning out very disappointing. The weather has not been favorable for keeping the apples in the best condition, and there will be a heavy shrinkage. The general price paid to growers in the fall was \$2.00 to \$2.25 a barrel, taking everything. While the market still may brighten considerably, both for Ontario

fruit and Nova Scotian, it is to be feared that it will not strengthen sufficiently to place the season of 1907-08 on record as other than a poor one for the export apple trade.

BETTER SERVICE NEEDED

The glaring indifference of the railway companies of Canada to the demands of fruit shippers for adequate facilities for transporting fruit rapidly and in good condition, has brought about the organization of the Ontario Apple Shippers' Association. By united effort through this organization, the fruit shippers of the province expect to secure better treatment. Following the organization of the association and recognizing at last the growing need of the industry for proper transportation facilities, a circular was issued from the office of Mr. J. W. Loud, freight traffic manager of the G.T.R., asking for views from shippers in regard to equipment best adapted for the handling of apples and other fruit during the winter season. The company is desirous of knowing what is the extent of the shipments of fruit to Europe, to the United States, to the west and to other points, and the type of cars that would give the best results. It is important that every shipper should assist in giving the necessary information.

The favorable attitude of the Board of Railway Commissioners towards the fruit shippers and growers when they met in session in Toronto a few weeks ago, would indicate that the board appreciates the serious position the shippers are placed in during the present winter, and intends to force the railways to provide at least reasonable equipment for the fruit traffic. It is up to the shippers to assist in every possible way the railway commission in securing evidence of actual cases of negligence and indifference on the part of the railways.

Since Prof. M. Cumming, Secretary for Agriculture for Nova Scotia, announced at the fruit growers' meeting in Berwick last December that the Government would pay a bounty of ten cents for every brown-tail moth nest found, valuable results have been had. During the Christmas holidays, one of the students of the Agricultural College found and collected nearly 400 nests near his home at Bear River, Digby County. The children of the Bear River school have found over 1,200 nests since the announcement of the payment of the bounty. It looks as if there still might be a good many brown-tail moths in Nova Scotia, but the payment of this liberal bounty will greatly reduce the number, if not completely eradicate the pest. The Government is to be commended on its action, and should continue the work until the province is freed of the pest, or at least, until there is no possibility of it gaining a dangerous foothold.

The establishment of a horticultural club at the Ontario Agricultural College, Guelph, is a movement that should give stimulus to the study and practice of horticulture at that institution. It will afford an opportunity for the acquiring of advanced knowledge that cannot always be had in the class-room. The social features of such a club, centred in a horticultural atmosphere, should play their part in making it a success. Only profit should come from such an organization, and it will if it is founded on enthusiasm.

The legal weights for vegetables in Canada are, per bushel: Potatoes, turnips, carrots, parsnips and beets, 60 pounds; onions, 50.

Orchard cultivation should be thorough. One of the best implements for the purpose is the disc harrow. Write for the catalog of T. E. Bissell Co., Ltd., Elora, Ont.

Montreal

E. H. Wartman, Dominion Fruit Inspector

For some time I have been visiting packing houses in and around Colborne. In all, about 100 packers are employed, which means that a lot of apples are re-packed daily for export. The quantity on hand for re-packing on Feb. 19, numbered about 35,000 bbls. One thing that puzzles me, and that is why No. 3 apples are shipped. I have just figured up the net returns on 1,210 bbls., various kinds, and can only credit the shippers with getting back nine cents a barrel for the apples. If one Liverpool firm sells this amount in 12 days, can we imagine the aggregate of 15 firms doing the same business and what the loss is to our country? The nine cents per barrel would not pay for re-packing them.

I find that apples are keeping remarkably well. Even when an occasional barrel of Snows are opened up, they are found to be in good condition. The varieties most in evidence are Ben Davis, Golden Russet and Spy. It is not likely that packing operations will end before April 1st in this locality.

New Brunswick

G. Bidlake, Fredericton

The annual meeting of the New Brunswick Fruit Growers' Association was held at Fredericton on January 24. In connection with the meeting was an exhibition of fruit grown by the members. Some fine specimens were shown, which were favorably commented on by Mr. G. H. Vroom, who acted as judge.

The president, Mr. J. C. Gilman, of Kingsclear, in his opening address, referred to the fruit crop of the past year, and said that, in spite of adverse weather conditions that had to be encountered, the crop gave ample evidence of being reliable and profitable in many sections of the province. The outlook has never been more encouraging for increasing their acreage of fruit than it is at the present time.

Mr. W. McIntosh, the curator of the Natural History Museum at St. John, gave an interesting address on "Insect Pests in Orchard and Farm," which was illustrated with large colored drawings of the various insects described. The bud moth, the codling moth, the aphid or green fly, the oyster-shell barklouse, the borers and the tent moth were fully dealt with and the several remedies for combating them described. The brown-tail moth and the gypsy moth also came in for some attention on the part of the lecturer, who expressed his gratification that these two latter had not as yet arrived in New Brunswick. With the exception of one or two stray specimens which had been found and summarily dealt with. He advised his hearers to be on the lookout for any nests; those of the brown-tail moth were easily seen, being always at the end of a branch. The nests of the gypsy moth were not quite so conspicuous, as the female, not being able to fly, had to deposit her eggs in the most convenient place she could find.

Mr. S. B. Hatheway, Kingsclear, gave a short account of his experience as an amateur orchardist. Beginning some few years ago, he laid out an orchard of six acres, planting trees of the McIntosh Red, Gano and Dudley Winter varieties. He gave an interesting account of the system under which he went to work, but said he found the continuous cultivation which the young trees required rather costly. He was, therefore, on the lookout for some less expensive method of keeping down the weeds, and he thought he would follow the example of the president and lay a thick mulch round the trees. This method was much less trouble and expense. He made a practice of going round the orchard frequently with his clippers and taking off the shoots here and there, which made the training of the young

trees a much simpler matter. He would like to see more farmers taking an interest in orchard work, as it was certainly sufficiently profitable, if properly attended to, to make it worth while.

Mr. G. H. Vroom, Dominion Fruit Inspector, gave a practical demonstration on box packing. In an address on "Orchard Practice," he said that it was no use for a man to start orcharding unless he bought good trees, locally grown if they could be got, and of a variety suited to the district. Plant them 30 feet apart and head them low, as low-headed trees were more convenient for pruning, gathering and spraying. Pruning should be done in May or June, and at least half the growth should be cut off every year. Frequent cultivation was necessary, and it must be thorough, though it was not necessary to go very close to the roots, as they would find the requisite nourishment for themselves. Grass should not be allowed to grow too near the trees, as it harbored mice and other pests. Spraying must be done thoroughly. Mr. Vroom advised those who contemplated going into apple growing, to give their whole attention to it, or keep out. He thought the box business was the most remunerative; a good variety of apple nicely packed and the quality always to be depended on would soon get a man a reputation, which would find him all the customers that he could supply.

Mr. Isaac Stephenson, of Sheffield, was elected president; Mr. W. B. Gilman, vice-pres.; Mr. Henry Wilmot, treas.; and Mr. S. B. Hatheway, sec'y, for the ensuing year. It was resolved to adopt THE CANADIAN HORTICULTURIST as the association's official organ for the Dominion.

Nova Scotia

R. J. Messenger, Bridgetown

"Disastrous" is probably the best term to apply to the season's operations in export fruit so far. The trouble seems to have begun by one or more Americans who, hearing that we had an exceptionally good crop of clean fruit, came over early in October and paid \$3.00 for apples. This, and the Government reports of a small crop, set our speculators wild. They lost all control of themselves, and acted like a lot of schoolboys after a con. As high as \$2.50 a barrel was paid for apples as they came from the trees, and \$3.00 to \$3.25 for packed apples, something that no cool business man should do in this 20th century of great fruit production. Then the bottom dropped out of the English markets, and it will probably not get back into place again this year.

Numberless reasons for this unforeseen state of affairs have been given; such as an overrun of poor apples, larger shipments than ever before in spite of the early reports, fraudulent combines of dealers, and so forth. The fact remains, however, that apples, for which \$3.00 was paid, are netting 75c to \$1.00 a barrel.

The speculators are now acting characteristically, in that since fate has allowed the farmer for once to get a seeming advantage of them, they are trying to combine to compel the farmer to refund some of the purchase price. One heavy speculator has gone crazy for the second time in the past decade, and some are unsympathetic enough to say that it is his way of paying his debts. A meeting of these worthies was held at Middleton last week "for purposes of self protection," so it was given out, but more probably it was to get the foot more firmly planted on the neck of the "poor, stupid, unenterprising farmer."

One speculator said to me: "No more apples would be bought in this valley for anything near \$3.00 a barrel." He also said that \$1.00 a barrel was enough for apples, and "we" would see that the price was kept down to that or near it. I wonder if the farmers of Nova Scotia will submit to this when the remedy "cooperation" is in their own hands.

British Columbia

The annual meeting of the British Columbia Fruit Growers' Association was held at Victoria in January. The election of officers resulted as follows: Pres., Jas. Johnston, Nelson; 1st vice-pres., S. Bartholomew, Summerland; 2nd vice-pres., A. E. Gale, Keating; 3rd vice-pres., S. McClenaghan, Golden; 4th vice-pres., Thos. Wilson, Vancouver; sec.-treas., W. J. Brandrith, Ladner. Thos. Cunningham, W. J. Brandrith and Thos. Wilson were made honorary life members with all the privileges of membership. A resolution endorsing the action of the chief fruit pest inspector in connection with orchard cleansing, was unanimously passed. A resolution was passed asking the Government to make an exhibit of butter and fresh fruit at Calgary.

The reports of the president and secretary were filled with interesting information. They referred encouragingly to the progress of fruit growing in the province and the possibilities. The treasurer's report showed the association to be in a good financial position. It was decided to hold the next annual meeting also in Victoria. Agassiz was decided upon for the holding of the next quarterly meeting, Cranbrook for the second, and New Westminster for the third.

A Horticultural Club

The students of the Ontario Agricultural College, Guelph, who are most interested in horticulture, have organized a club through the efforts of Mr. A. McMeans, the Ontario Vegetable Growers' Association representative, and Mr. J. W. Crow, lecturer in the horticultural department. The aim of the club will be to encourage the study and the love of horticulture among the students, and to advance horticultural interests at the college. A reading room, to be accessible at all times, has been fitted up in the horticultural building, and in it, all the leading fruit, vegetable and flower papers will be kept on file. New bulletins will be on hand, and a bulletin board will be used to announce new books, valuable articles in the papers, good bulletins, and so forth. A very large majority of the horticultural publications have very kindly agreed to list the club free, and to them, the thanks of the members are heartily given.

Meetings will be held every alternate Monday for the discussion of all matters relating to horticulture. The first regular one was held Feb. 10, and to judge by the enthusiasm and optimism manifested, the club affords an opportunity for good work, and will be a valuable stimulus to the study of horticulture. Its possibilities for the encouragement of the pursuit of horticulture are great, and Mr. McMeans was accorded liberal applause on a live address outlining the place the club should, and could, occupy in the affairs of the college.

The officers elected were: Pres., A. McMeans; vice-pres., R. M. Winslow; sec.-treas., J. W. Crow, B.S.A. A committee of students of the first, second and third years was elected to give adequate representation. The paid-up membership totals twenty-seven, and this will be increased considerably in a short time.

High Class Sprayers.—Elsewhere will be found the advertisements of the Spramotor Co. Particular attention is asked from our readers to the sectional views of the Hand Spramotors on page 70. This machine in its several sizes has had such a vogue in Canada since the famous Spray Pump Contest held at Grimsby, where it was awarded the first place, that we believe we are safe in saying that there are more of this class of machines in use in Canada than all other kinds combined. Its use is so varied, being well adapted for all the uses in spraying, there being no operations in spraying to which a hand machine may be put that

it is not capable of doing. This style machine is adapted for fruit trees of all kinds, potatoes, mustard, painting. It is easy working, durable, and gives high efficiency. This machine is only one of many kinds. We recommend any who contemplate commencing spraying

for the first time, or those desiring renewals, to get the latest information of the Spramotor. They make a full and reliable line of Spramotors for all purposes, to be operated by hand, horse power and gasoline power. Their address is Spramotor, 1066 King St., London, Canada.

Each year will see a gradual advance in its value.

The possibilities of British Columbia as a fruit growing province are almost unknown. The trade is yet in its infancy. Land that can be purchased now for \$150 an acre will, with proper care, command \$1,000 an acre in 10 years' time.

The climatic conditions and the mountainous nature of the land lend themselves admirably to fruit growing. Other lines of agriculture are almost impossible in most of the fruit sections. In the future British Columbia will be known, as California is in the United States, as the greatest fruit producing province in Canada.—W.G.R.

Land Values in British Columbia

The fourth of a series of articles on fruit growing in British Columbia, written by a staff representative of The Canadian Horticulturist, who visited the leading fruit districts of that province

MANY intending purchasers of fruit land in British Columbia are surprised when they find the prices asked for orchard lands. It is difficult to convince them that there is a reasonable chance to secure a profitable return upon the investment required. Old rules for determining the value of an acre of land do not apply. The best method is to know what revenue the land will return to a grower.

Land suitable for fruit growing can be purchased from ten dollars to \$200 an acre. Some land is ready for the plow at \$150 an acre, while other land is being sold at \$150 an acre that will require an expenditure of from \$25 to \$250 an acre to clear. On some of the land near the coast the timber and underbrush is of such a tropical nature that, in some instances, it will cost \$300 an acre to clear it. Land east of the Chilliwack Valley that requires clearing can be put in shape at an average cost of about \$75 an acre.

There are several items of expenditure that must be considered by the purchaser when computing the price to be paid for land, such as clearing, irrigation (which costs on an average of \$2.50 an acre each year), taxes, transportation charges, distance from markets and

fencing. Ten acres of good fruit land can be purchased, cleared and planted with apple or peach trees, fenced and with an irrigation system constructed, for \$1,900. The cost of irrigating and cultivating the land, and spraying and pruning the trees for four years, would amount to \$800. Add to this \$500 for interest and taxes, and you have a net cost of \$3,200 for a 10-acre block of land at the end of four years. The crop of peaches picked from an acre of land in Peachland last season, in its fourth year, was sold for \$300. At this rate, the revenue to be derived each year after bearing, is nearly equal to the total cost of the land for the first four years. A well-cared-for orchard, at the end of five years, is considered to be worth \$600 an acre; at 10 years of age, \$1,000. The revenue to be derived from the land depends largely upon the individuality of the purchaser. Intense cultivation of the land in certain sections has returned a profit of from \$500 to \$1,000 an acre. Offers of \$1,000 an acre for bearing orchards have been made and refused. Land that can be secured at the prices that are being asked for good fruit lands in British Columbia is cheap, when the question of what the land will produce is considered. The prospects are that land never will be cheaper.

Practical Labor Savers



The Planet Jr. tools for farm and garden have an established reputation for quality as well as efficiency and they are popular everywhere. They are used as successfully in Egypt and other foreign countries as they are in all sections of our own land. They represent the most advanced thought and ideas in farm imple-

ments making, and hardly a year passes without the introduction of some new device or improvement to increase their usefulness to the man who tills the soil. The No. 4 Planet Jr., which is a combination of hill and drill seeder, wheel hoe, cultivator, furrower and plow, is the most complete tool a farmer or gardener can have on his place. With it he can do more work and keep things in better condition with one-fourth the work required without it. This is only one of



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All strong, thrifty, $\frac{3}{4}$ inch Stock, grown on the choicest spots in the Niagara Peninsula.

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the many Planet Jr. combination tools—there is one for every farm and garden task whether for hand or horse-power—and all of them are sold with an iron-clad guarantee of absolute satisfaction. If you will drop a postal to S. L. Allen & Co., Box 1106G, Philadelphia, they will be pleased to send you one of their catalogs.

Our readers will be interested in a new spray nozzle that is being put on the market by the E. C. Brown Co., Rochester, N.Y. It has many exclusive features. It is adjustable and can be made to throw either a diffused or wide angle, bell-shaped spray or a concentrated one for long distance work. This is not the only advantage. Write for further information to the makers above mentioned.

A device that should find favor with the users of hose is the "Time Saving Coupler." These couplers can be adjusted instantaneously. The washer is situated in a recessed seat, and is protected by an annular shoulder, so that it is impossible for it to become displaced unless purposely removed for renewal. The wedge-like action of the lever brings the tip of the male section into such tight engagement with the washer, that there is no possibility of leakage, thereby saving force. This coupler is being manufactured by the Time Saving Coupler Company of Toronto. Their advertisement appears in this issue.

Peerless Apple.—Samples of the Peerless apple were shown at the Toronto Fruit and Flower Show in Toronto last fall, and attracted a great deal of interest. It was originated from a seed of Duchess, planted by J. G. Miller, near Faribault, Minn., and is exceedingly hardy and productive. The fruit is large and of good quality; color, a brilliant red on yellowish green

ground. Stem short and hangs on tree well. The Pelham Nursery Co., of Toronto, who are pushing its sale, have such confidence in this

variety that they are increasing their stock to 10,000 and will further increase same from season to season as the variety becomes better known.



This is a photographic reproduction of the latest model Horse Power Spramotor, fitted as a vineyard sprayer. A most excellent machine, worthy of your careful investigation. For vineyard, orchard, potato, mustard or surface spraying. If you are interested write me personally.

H. H. Heard, 1067 King Street, London, Canada
or 1067 Erie Street, Buffalo, N. Y.

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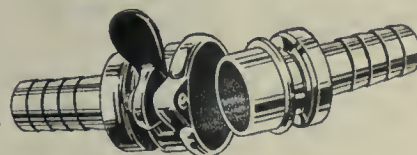


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A MILLION STRAWBERRY PLANTS for sale, not bought from dealers, but grown on my own farm last year. Fifty-five varieties. New Highland, Three W, Victor, Wonder, Thompson's No. 2, President, Morningstar, Abington, Almo, Governor Rollins, and others, and all the leading old varieties. If you want plants this year that will please you when they arrive, and please you better still when they fruit, order Downham's. They have pleased others and will please you. It will pay you to get my free catalog before you buy, ready to mail now. Raspberry and Blackberry plants, and Seed Potatoes. John Downham, Strathroy, Ont.

FRUIT GROWERS! Drain your land and double your income. This may seem exaggerated but it's a fact. Use Doyle's tile. Estimates given. R. J. Doyle, Owen Sound.

SEND YOUR ADDRESS for list of strawberry plants, also red and black raspberry plants and seed potatoes. R. C. Cryslar, St. George, Ont.

FOR SALE, Six No. 8 Gurney Hot Water Boilers in good condition, suitable for private house or greenhouse work. Apply Stevenson & Malcolm Co., Guelph, Ont.

FOR SALE—400 acres in Russel Township, 70 good for orcharding.—W. G. Parham, Maritana, Que.

A FIRST-CLASS MARKET GARDEN for sale, with no opposition. Two large greenhouses, large dwelling house, stable buildings, all new. Implements all up-to-date, good team of horses, new rigs, twelve acres of land. Can be bought for cost. Easy terms. Apply at once.—J. A. Brillinger, Box 377, New Liskeard.

GARDENER seeks situation, ten years' good experience in all branches, in first-class English gardens. Excellent testimonials.—E. Fane, care of G. Ruthven, Alliston, Ont.

GREENHOUSE FOR SALE—Length, 42 ft.; width, 18 ft.; hinged double glass windows on each side, 5 top ventilators with floor stand and gear, equipped with a No. 3 Daisy boiler, and 6 run of 4-inch pipe on each side. Apply Box G, CANADIAN HORTICULTURIST.

High-Class Upright Piano for \$225.00.—There have been taken into the warehouses of Heintzman & Company, Limited, 115-117 King Street West, Toronto, within the past few days, two upright pianos, very little used, and bearing the names of well-known manufacturers. One of these may be bought for \$225, and the other for \$250. It is an opportunity to get what is practically a new piano at nearly half the manufacturer's regular price.

Selecting a Spray Pump

When selecting a pump, one should not have in view the cheapest one that will do good work. Durability, capacity, ease of working, ease with which the parts may be gotten at and repaired or replaced, are other essentials that should be thought of.

A good pump for all-around work is the "Admiral." Its size is such that it can be used with equal results for orchard or field spraying, also for other purposes about the farm when necessary. It is of sufficient capacity to supply four leads of hose or two leads, each with two, three or four nozzles. For orchards not large enough to warrant the purchase of a power outfit, a pump of this capacity will be found very serviceable, as it is built for continuous work and high pressure. The cylinder lining is made of heavy seamless brass tubing, and is firmly held in the cylinder by threaded connections. This manner of securing the lining in the cylinder makes it possible to remove it when worn out and replace with a new one.

The valves are made of brass. They are so situated that each one can be readily reached by removing the valve covers. To do this it is only necessary to use a wrench, iron rod or stout stick. The piston rod is made of brass and outside guided, thus making it impossible to get any other than a perfectly straight thrust through the stuffing box. Many features that will be found valuable to the prospective buyer are to be found in this pump. Complete circulars describing the Admiral Spray Pumper will be supplied by the Goulds Manufacturing Co. of Seneca Falls, N.Y.

THE CANADIAN HORTICULTURIST is invaluable to people interested in the fruit industry.—C. H. Deakin, Manchester, England.

The Niagara Peninsula Fruit Growers' Association will hold a series of meetings early this month. The first meeting will be held in Grimsby on March 4, followed by others at St. Catharines on the 5th and 6th. Mr. J. H. Hale, of Georgia and Connecticut, the "Peach King," and Mr. W. W. Farnsworth, secretary Ohio State Horticultural Society, have been secured as speakers.

Prince Edward Island

Rev. Father Burke, Alberton

There is no snow here this winter to break down anything in the shape of trees, and unless these frequent thaws with rising temperature should conspire to hurt sap circulation too early there should be a good enough prospect of fruit in our orchards under usual conditions at blossomtime. We really require a good crop of fruit to put growers in proper fettle for their work. Lean years discourage tremendously.

There is more talk of wretchedly picked fruit this year than ever. This province has been the dumping ground for much of it—from Ontario and from Nova Scotia. I saw a barrel of No. 1 Spy (Ontario), a day or two ago, which really surpassed in rascality anything I had ever previously witnessed, and that is saying a good deal. That anyone could find courage enough to put up such a job on his fellow-man, was a marvel to me. But he should and must be found out and punished.

The plan for co-operation in buying here is now launched so far as nursery stock is concerned. The Fruit Growers' Association is sending out circulars to intending planters, guaranteeing the stock and the price and promising to have it delivered in proper condition. There should be considerable planting.

Inspector Boyer is moving about examining the apple imports of the province, and he will have a tale to tell shortly which will not edify anybody too much as to the honesty of apple packers.

A Fair Spraying Proposition.—Test is the strongest argument. When a reputable firm like the Hurst Mfg. Co., of Canton, Ohio, offer to send a choice of three different sprayers with no money in advance, it means that there is value and honesty in the proposition. You can try one of their sprayers for 10 days, and then if you buy you can pay the cash, or they will wait until you sell your crop. All their sprayers are protected by a five-year guarantee. There are no strings to this offer. Their new free catalog will be sent to every applicant. It describes their spraying machines, and explains how one can get a Hurst Sprayer free. It contains their agreement by which any farmer or fruit grower can try their machines "without sending one cent."

CALIFORNIA OF CANADA

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We have some of the choicest Fruit Land to be found in the Dominion of Canada, at half the price of California land, and which will give as good results. The soil is right, the climate is right, and above all an inexhaustible market. A post card will bring our 72-page pamphlet on Chilliwhack free. For particulars write

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BOX 294

Mention The Canadian Horticulturist when writing

Horticultural Societies Act

It is understood that at the present session of the Ontario Legislature some important amendments will be made to the Horticultural Societies Act, along the lines recommended at the last annual convention of the Ontario Horticultural Association. In the address delivered by Mr. H. B. Cowan, managing editor of THE CANADIAN HORTICULTURIST, it was recommended that the Act be so changed that the horticultural societies would be allowed to hold their annual meetings during the first week in November, instead of in January as is now required.

In this direction it was pointed out that the enthusiasm of the work had not died out in November, and more interest would be taken, therefore, in the election of the officers for the following year's work. The election of directors in November would enable them to plan their work for the following year at an early date. Another benefit derived would be that the annual reports would be in the hands of the Government about the first of the year, enabling the society to receive their annual grants early in the year, instead of late in the summer, as has been the case heretofore.

Another advantage recommended was that the clause in the Act requiring that, on or before the first day of May, the officers of every society shall send an affidavit to the Department in regard to the past year's work, should be eliminated and embedded in the clause requiring that the annual reports shall be sent to the Government within one month after the annual meeting of the society in January. A third suggestion was that the clause requiring that the special grant of \$800 to the four city societies, which is divided among them in proportion to their membership during the current year, shall be changed so that the grant would be divided upon the basis of the membership of the preceding year.

These matters were discussed at the recent convention, and the advantages recommended were endorsed, and it is understood that Hon. Nelson Monteith will adopt the amendments to the Act accordingly. It is probable, also, that the clause which restricts a society by requiring that it shall not expend more than one-third of its funds in any one line of work, will be amended to read "not more than one-half of its funds."

At the time of the convention Mr. C. C. James, Deputy Minister of Agriculture, gave a very interesting address bearing on the Horticultural Societies Act. He said, in his address: "I do not know of anything definite that is not workable. It would be most extraordinary if a perfect act were to be worked out, one that would not permit of any amendments. The points brought out in discussion at this meeting will be taken into consideration." He said, also, that the societies must give good reasons for wanting to know earlier what their grants are to be, for as the question stood now, no good reason had been given. It meant a radical change in the basis of distribution of the \$8,000. He referred to the one-third clause and said if they wanted it out, he was quite willing to take it out, but it always seemed to him to be a clause worth keeping in. One member suggested that the one-third clause be changed to one-half, and Mr. James said that as far as the department was concerned, and as far as their relationship with the present society was concerned, they were quite willing to leave that with the members to work out for themselves. He then referred to the exhibition at St. Catharines, and said it would have been a most lamentable proceeding if any section of that act had been enforced to prevent the holding of that exhibition, for it was a rare treat.

NOTE—At the last moment before going to press, we received a copy of the proposed amendments to the Horticultural Societies Act. The suggestions mentioned in this article have been adopted in full and will be acted before the Legislature at an early date.—Editor.

The Lenox Knapsack

A concern of standing, and a good one, twenty-five years in the business—the Lenox Sprayer Co., 165 w. 23rd St., New York, makers of many kinds of spraying apparatus for the trade, and spraying material which the San Jose scale do not like very much—are offering the real Lenox Knapsack Sprayer, particularly adapted for use on small fruit, low trees, vineyards, shrubbery, strawberry beds, in the nursery, potatoes, tomatoes, cabbage field, the poultry house, and upon the stock and in the stable. An important fact about this sprayer is, it does not require every few minutes to stop to pump air—or to swear. It can really be used by a lady, as the work is so easy and so simplified; you fill up the apparatus, and it is ready to work until empty. The regular market value of the machine is about \$6.00. Even though a barrel pump is owned on the place, a Knapsack Sprayer is handy many times in a great many places where a barrel pump cannot be used. Even the unwilling working boy delights in using this Sprayer—the Lenox particularly so. The company, owing to being a little overstocked—*over-manufactured*—offer them duties all paid, at a great cut price, which makes the investment well worth the while. Particularly at the present sacrifice in price, even though the season is a bit late, it is a good investment in order to have it early next season. Anyone having but few trees, a cow, and a chicken house, should have one of these sprayers on the place. See their advertisement on page 68 of this issue.

Famous Okanagan Valley

PENTICTON IS THE HUB

Buy land in the valley that wins the gold medal for British Columbia. In the centre of the peach belt. Apricots, grapes, Yellow Newtown pippins, Spitzenbergs, etc. Lying between two lakes, Penticton enjoys both moderate summers and winters. Bench or bottom land, in lots from one acre upwards, unimproved, or in one, two, or three-year-old orchards. A fast growing town on a beautiful beach, with a nice community. The terminus of C.P.R. S.S. Okanagan, and the connection in the near future with the C.P.R. main line through the Crow's Nest Pass.

Write, stating what you particularly want to

M. C. Kendall, Penticton

Okanagan Lake, British Columbia

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St. John, New Brunswick

Limited

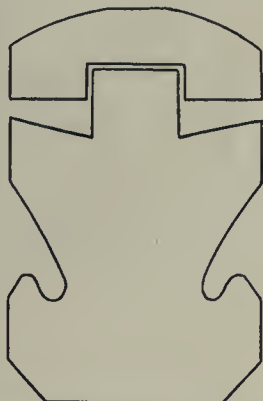
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MANUFACTURERS OF

Cypress Building Material

Made only out of the best clear Cypress—3 CENTS A FOOT

Suitable for Conservatories and VEGETABLE FORCING HOUSES

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LONG DISTANCE CONNECTION

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Duties all paid by us.

SEND FOR IT TO NEW YORK

NEW YORK IS THE PLACE FOR IT!

We Are Overstocked

Sprayer \$4.00

We Pay the Duties Here

WE MUST UNLOAD



NO STOPPING TO PUMP AIR

\$4.00
2 for \$7

Just Now!



BETTER MILK AND MORE OF IT



PRESS THE BULB, THAT'S ALL

YES!

You will get the regular \$6 LENOX IMPROVED SPRAYER for \$4, 2 for \$7, by sending for it to New York. BEATS THEM ALL. ALL IMPROVEMENTS. It will spray trees 20 FEET HIGH, holds 24 quarts, built of Apollo galvanized iron. Never rusts, never leaks; forcible and fine spray. DON'T TALK LONG. It will do your STRAWBERRIES, VINEYARD, GRAPES and all your small fruits, POTATOES, TOMATOES, CABBAGE and everything on your place. WHITEWASHING the hen house, cow stables, etc. A well-built machine, with care and if not abused, we will warrant it good for 12 years. Turn nozzle up, spray will reach all insects upon the ceilings in stables, breeding nests, in poultry houses, in all crevices and cracks, particularly THE UNDER SIDES OF THE ROOSTS, and between the HORNS OF THE COW, where most of the trouble comes from.

NO AIR PUMP BUSINESS. So easy A LADY CAN USE IT. NO STOPPING TO PUMP AIR or to SWEAR. Compress the bulb, you get your spray; stop your pressure and you stop the spray, on the principle of an engine PLUNGER pumping water, only much easier. By pressing and releasing the bulb, spray continuously reaches top of tree without artificial power. You can put your hand inside of sprayer to wash it out as easy as you would a milk can.



NO SWEARING

LOTS OF TIMES you can use a knapsack sprayer in places where you can not a barrel pump. While talking or hitching up the horses the work is done. Handy at any place. Even if you have a barrel pump you will use this one anyhow. Lots of times a patch off yonder ought to be sprayed, but won't pay to hitch up the horses. If this machine is handy John will sling it on his back and the spraying will be done while you are thinking. Send for our circular. YOU SHOULD KNOW ALL ABOUT IT. Or perfectly safe to send for the sprayer direct without waiting for the circular. A small can "Sure Destruction to San Jose Scale" sent free with each sprayer, if ordered at once.

A RECIPE issued by a chemist, how to prepare a sanitary lime milk for a whitewash that will stick and stay on the walls of the hen house, trees or stable walls, making insect breeding impossible. Anyone can make it cheaply and quickly wherever located. This recipe will be sent complimentary with each sprayer, if ordered immediately.

REMEMBER this is the regular \$6 Sprayer we are talking about, but made too many, we would rather sell at \$4 than wait until season opens to get \$6. JUST NOW you can have ONE FOR \$4 or TWO FOR \$7, DUTIES ALL PREPAID BY US. Order before they are gone. Time counts. NO LENGTHY LETTERS necessary. We will know what you want—that you want one of these LENOX IMPROVED SPRAYERS, perhaps a couple of them, and that you want them quick, too; but give us your name and address very plainly. PROMPT SHIPMENT. Twenty-four hours delivery. EXPRESS RATES FROM NEW YORK LOWER THAN FROM ANY OTHER POINT. Newspaper people have known us for over 20 years. We are old advertisers. What we say WE DO, we DO-DO. You can discount all our promises AT YOUR BANK. We SAY we will pay all the duties here, SO WE WILL.

Remit by express or post money-order; no checks taken for this price. Go down to the POST OFFICE now while you are talking about it. You may get your Spraying Solution and the Disinfecting Mixture all ready. The expressman will soon drive up to your house with the sprayer, and it will be a good one, too, VERY WELL FIT even to take orders for, if wanted from neighbors THE LENOX IMPROVED is the STANDARD KNAPSACK SPRAYER, beats them all; you take no chances when you have a LENOX. You won't have to stop from work to take it to the machine shop to find out what is the matter with the air-pump chamber or the nozzle, or anything else. No air-pump nuisance in this case. Our Lenox is ever ready, never failing.

FINE FOR WHITEWASH LIME MILK TO
BE USED IN THE HEN HOUSE

CAN. LENOX SPRAYER CO.

165 West 23rd Street

New York City

Mention The Canadian Horticulturist when writing



NO AIR PUMPING



MORE EGGS

Iron Age Implements

A copy of the catalog issued by the Bate-man Mfg. Co., which manufactures "Iron Age" farm and garden implements, has been received. It is interesting to note that "Iron Age" tools and implements are the product of a factory that has been established for 70 years. In the early days, these tools were made and sold only in local territory. Of late years the firm has been sending them into every state in the Union, every province in the Dominion, to islands in the sea and to every foreign country where agriculturists are adopting up-to-date methods and using labor-saving implements.

The quality of the implements and tools manufactured by this firm has increased with



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There is one roof that saves money because it will last 100 years. Guaranteed in writing for 25 years.

"OSHAWA" GALVANIZED STEEL SHINGLES

This roof saves you work because it is so easy to put on (do it yourself with a hammer and snips), and save you worry because they fireproof, windproof and weather-proof the building they cover. Write us about it and hear all about 207 ROOFING RIGHT. Address

The PEDLAR People (Est'd 1861).
Oshawa Montreal Ottawa Toronto London Winnipeg

FOR SALE—Parties desiring to purchase any of the cuts that have appeared in *THE CANADIAN HORTICULTURIST*, may do so upon reasonable terms. Apply to

The Horticultural Publishing Company
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CAHOON

is the name of the most accurate and durable Hand Seed Sower on the market. Sows 4 to 5 acres per hour. Write for new booklet, "Sowing for Results" and 50th anniversary souvenir.

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95 Main St., Antrim, N. H.



BABY RAMBLER
Ever-blooming Crimson Dwarf. Think of roses every day from June until frost out of doors.

The Central Nurseries

are supplying splendid value in Fruit and Ornamental Trees, Shrubs, Roses, Grape Vines, New Herbert Raspberry, Rykman Strawberry Plants in varieties. All well grown. True, dependable stock. Send for our Free Priced Catalogue. We ship direct to our customers with satisfactory results. Try us. 28th year.

Seed potatoes: Climax, Eureka, Eldorado, Peck's Early, Early King, Golden Coin and others.

Poultry: R. I. Reds; none better; cockerels from \$1 up. Eggs in season.

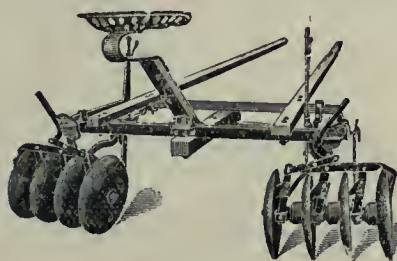
A. G. Hull & Son, St. Catharines, Ontario

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The BISSELL ORCHARD DISK

A Reversible Disk Harrow which can be used in the In-Throw or Out-Throw form. Gangs can be set close or extended to reach under trees. Built in a variety of sizes for one or two horses, with immense capacity and



the many good features of all Bissell Disks. Gardeners, Fruit Growers, Dairy Farmers, Wheat Kings, Ranchers, etc., find what they want in Bissell Implements.

Ask your agent to order for you or write direct to the manufacturers.

T. E. BISSELL CO., LIMITED
DEPT. "N" ELORA, ONTARIO

None genuine without the name "Bissell."

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SELECTED SEEDS

GIVE SATISFACTORY RESULTS

Our Vegetable Seeds are of undoubted purity and produce abundant crops. Our Flower Seeds are true to name and of the highest germinating power. Sutton's Specialties are always in stock. We do not make up special collections of seeds and advertise \$1.00 worth for 50c. as specials. We give every customer \$1 worth of pure seeds for every dollar spent with us. A trial order will convince you that we sell only those seeds that are sure to grow. Illustrated catalogue sent free to those who wish to grow pure seeds. SEND YOUR NAME TO-DAY

DUPUY & FERGUSON

36 JACQUES CARTIER SQUARE, MONTREAL

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Of Nursery Stock Should Write Us for Prices at Once

SEND in list of stock wanted and we shall be glad to give our lowest quotations on same. Shipping season is close at hand and your orders should be placed without delay. Sales have been heavy, but we still have a large stock of fine trees of the leading varieties. All orders, large or small, will be given careful attention. We lead in quality and price. Send for Catalog. Our stock is strictly first class and guaranteed true to name. We pay freight and express; no extra charge for boxing or packing.

"Canada's Oldest Nurseries"

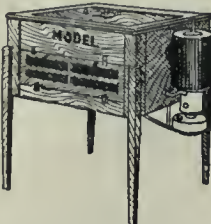
The Thomas W. Bowman & Son Co.
RIDGEVILLE, ONT. Limited

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the development of the business. A large list of all kinds of wheel hoes, seed drills, wheel plows and cultivators, and horse hoes and cultivators are listed in the catalog for 1908.

CHAS. A. CYPHERS' Model Incubators and Brooders

On my Model Poultry Farm I now have poultry numbering **80,000** hatched and brooded in my famous Model Incubators and Brooders. Buying your incubators and brooders of a man who knows nothing (or next to nothing) about hatching and raising poultry is running a useless risk. Don't do it.



I not only sell you a Model Incubator or Brooder, but I add to them the valuable experience of years as shown in their construction. Model Incubators show excellent hatches, hatch every hatchable egg. The Model Brooder grow sturdy chicks.

Send your order in to-day, and get in line with the profit getters.

Free catalogue for everyone.

THE MODEL INCUBATOR CO.
196-200 River Street TORONTO, ONT.

The "Iron Age" potato planter also is described and illustrated. This implement should be used more extensively by farmers and vegetable gardeners. It is a great labor saver and does the work better than it can be done by hand.

POULTRY DEPT.

Conducted by
S. Short, Ottawa

In the February number of THE CANADIAN HORTICULTURIST reference was made to the growing popularity of the incubator which has become such a necessity to successful poultry keeping. It may be in order to enumerate some points wherein the incubator has the advantage in comparison to hens.

In the first place, the hen should never be set in the same pen with laying hens, for the layers will certainly lay in the same nest, and the result is usually one or more broken eggs, which necessitates the washing of the sound egg and a fresh nest to be made. To avoid this difficulty, it is imperative that the setting hens should be in a pen by themselves. Now the trouble begins. Rarely the hen takes kindly to her new surroundings, and great patience, perseverance and temper control are required before Biddy decides to do business at the new stand. With the incubator their trouble is overcome.

The hens in the hatching room require con-

stant watching to see that they keep to their respective nests, that they do not foul their nests, for if so, as when they break an egg, the nest has to be made over and the eggs carefully washed; in some cases, a most disgusting piece of work. With the machine, this never happens.

During the incubation period the hens should be dusted liberally with an insecticide, to destroy the several varieties of lice which infest their bodies. No matter how faithfully this is done, the chicks are invariably lousy, and have to be treated for vermin every week or two during the first two months of their lives. The machine does not hatch lice as well as chicks, and therefore the chicks escape this, at times, a fatal evil.

Not more than 10 to 12 hens should be hatching at one time in the same pen. It will take more time in feeding and caring for these 10 or 12 brooding hens than one machine and 12 hens will, on the average, not hatch any more chicks than one machine of 120 eggs capacity. Nor is the cost of running the machine very much more than the feeding of the hens.

Any one who hatches by machine will have no trouble in rearing chicks by artificial methods. Brooders are made to resemble the hen as near as possible in providing warmth and light, in conjunction with good ventilation. Thermometers and instructions are provided with all brooders. Watch the one and carefully follow the other, that is, if the operator has had no previous experience. After a few successful trials it is time enough to go in search of original methods, which are expected to be improvements on those approved by the maker of the brooder. If the breeding pens are not now complete, they should be made so immediately, for it is essential to success, and only fair to the machine, that fertile eggs from healthy fowls should be used in the first trial of the new machine.

Fruit growers in British Columbia should be interested in knowing that the Harris Nursery Co. of Penticton, have in stock a general line of fruit and ornamental trees, small fruits and shrubbery.

A Piano for \$25.00.—In every sense of the word the sale of somewhat used, but not badly used, square pianos at Heintzman & Co.'s, Limited, 115-117 King Street West, Toronto, is sensational. The announcement has brought this firm orders from almost every corner of the Dominion. The determination is to clear out every square piano in the place between now and stock-taking, and surely prices like \$25, \$30, \$35, and \$40 will do it—in payments of \$5 down and 50c. a week.



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President
The Manson Campbell Co.
Limited

You can make money raising chickens— I know you can

I want you to write me to-day and say, "Send me full particulars of how I can make money raising chickens." Then I will send you my 1908 booklet on the Chatham Incubator, which is full of valuable information.

I will also send you a booklet giving the experience of Chatham users all over Canada—showing in actual figures what big success they have had. This will prove to you how easy it is to turn a very small amount of time into good money.

In the same mail I will give you

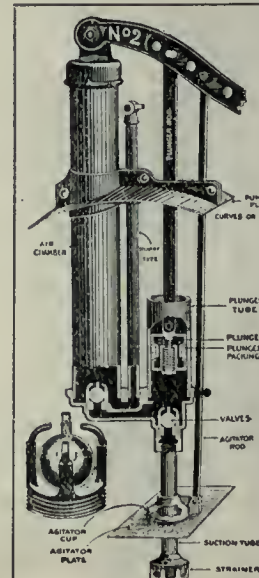
My special price, on time

I know that as soon as you get this information and my easy terms you'll want to start raising chickens at once. My booklet tells you how the Chatham Incubator is made—the sound lumber and honest workmanship—tells why it hatches more chickens than any other make. It also tells why I can guarantee my incubator for five years, and the strength of the Company that is back of that guarantee. Sit right down now, while you have it in mind, and send me a post card asking for my booklets and special price on time. To save time address my nearest office.

The Manson Campbell Co., Limited, Brandon, Man.
The Manson Campbell Co., Limited, Calgary, Alta.
D. Hammond, Box 194, Victoria, B.C.
Cote & Co., 6 St. Peter St., Montreal, Que.

Manson Campbell, President
The Manson Campbell Co., Ltd.
Dept. 82 Chatham, Ont.

I also have a shipping warehouse at Halifax, N.S.



This sectional cut shows why the Spramotor Hand Sprayer is so effective, simple and durable. There are more of these Spramotors in use in Canada than all others combined.

See latest catalogue, free.

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over a period of three
years. Process and
formula patented. Ad-
dress correspondence to*

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Vacaville California

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A Good Spraying Nozzle

Experience has fully demonstrated that a spray nozzle to-day, in order to best meet the strong, peculiar requirements of the up-to-date fruit grower, must possess the following principles:

It must be of sufficient capacity in order to do away entirely with the usual cluster of fine nozzles. Its aperture and orifice must be sufficiently large to permit the passage of sediment. It must be free from sensitive, internal, movable parts that operate nicely when new, but stick when corroded. It must have no stems, horns or hooks to catch in the limbs; must not drip or drizzle. It must be so constructed as to insure long life, especially to prevent the boring effect by the heavy solution under pressure into the face of the body of the nozzle. It must produce the so much desired fine spray.

Many of the leading manufacturers are endeavoring to produce such a nozzle. Fruit growers should be cautious as to what they buy. The manufacturer should do the experimental work. We manufacture only a nozzle which is the original of this type. It is covered by several strong patents with others pending. It is the result of years of experimental work, costing thousands of dollars to perfect it. Thousands of the one pictured were used last season with best results. Its manufacturers and holders of the patents "Are Reliable."

Fruit growers may obtain this nozzle, post-paid, by remitting \$1.55 to The "Friend" Mfg. Co., Gasport, N.Y., manufacturers of complete hand and power spraying outfits. Their situation as it is in the heart of the Niagara fruit district; pioneers in the art as they are, building every part of their machines as they do, makes it possible for them to give fruit growers more for their money than any other manufacturers. They have a new ball shut-off which keeps the hands dry, price \$2.20 post-paid. Good inducements are offered to live Agents. Their new illustrated catalogue is free.

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Shippers' Association

Letters respecting the organization of the Ontario Apple Shippers' Association and its purpose were sent by THE CANADIAN HORTICULTURIST to members of the executive. The following replies have been received:

Mr. E. D. Smith, M.P., Winona: "This Association will have my hearty cooperation. I thoroughly believe in associations of this kind and sincerely trust that we may be able to remedy many of the defects and short comings in the apple shipping business. There is a great deal to be done and it can only be done by the cooperation of all the shippers."

McWilliam and Everist, Toronto: "The association was formed for the purpose of trying to secure better transportation facilities both by railway and steamship lines. So far nothing definite has been done outside of discussing the best methods to take to secure these facilities."

Mr. M. S. Schell, Woodstock: "That the railroads have lamentably failed in giving anything like an adequate service in supplying cars and handling the same for the apple business is beyond question, and united action by shippers should compel a better recognition."

Mr. J. G. Anderson, Lucknow: "While it was doubtless the transportation question which called the association into existence, yet there are many other matters affecting the apple trade, which will no doubt receive careful attention. It is a lamentable fact that in many districts of the province, the proper care of apple orchards has been sadly neglected, and it will be the purpose of the association to promote a movement amongst apple growers in these districts to pay more attention to the cultivation, pruning, spraying and fertilization of their orchards. Then, again, the Fruit Marks Act, which has admittedly done some good, has some features which, in my opinion, are very bad, and it will be for the association to make such representations to the government as will secure the elimination of these objectionable features. These and many other matters affecting the apple trade present a fine field for useful work, and I look for good results on account of the formation of the Ontario Apple Shippers' Association."

The Popular Piano-Player.—The player-piano has stirred up any amount of enthusiasm in musical circles, if the many sales being made by Heintzman & Co., Limited, 115-117 King St. West, Toronto, are to be taken as a criterion. This firm have a very wide selection of player-pianos at terms of payment to suit almost any purchaser;

Altogether I regard THE CANADIAN HORTICULTURIST as very valuable to anyone interested in gardening.—T. H. Reddit, Principal High School, Barrie, Ont.



Guaranteed GARDEN TOOLS

Planet Jr Tools are so strongly and carefully made that we never hesitate to give a broad full guarantee. You run no risk. More than a million farmers and gardeners are now enthusiastic Planet Jr users.

Planet Jrs are invented and made by a practical farmer and experienced manufacturer. They do the work of three to six men without them—save time, labor, seed, and give better results.

Write today for our 1908 catalogue of Seeders, Wheel-Hoes, Cultivators, etc.—45 kinds—a tool for every gardener's need.

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WRITE FOR THE NAME OF OUR NEAREST AGENCY

Big Potato Crop at Least Expense

Write now for **Free Book** that tells how to increase your Potato Crop 40 to 75% and how to cut out labor and expense by using

ASPINWALL POTATO MACHINES

which cut, plant, cover, fertilize, spray, dig and sort potatoes. Practical Success guaranteed and proven by our 25 years' experience in potato machine building. Address Head Office.

Aspinwall Mfg. Co.
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Canadian Factory, Guelph, Ont., Canada



Okanagan-Grown Fruit Trees

D. Gellatly, Grower and Propagator of high-grade Fruit and Ornamental Trees, Seeds, Bulbs, Roses, Shrubs, etc. Send for Catalog.

DAVID GELLATLY, GELLATLY, B. C.

TREES PLANTS VINES

SPECIALTIES
PERFECTION CURRANT
HERBERT RASPBERRY

Shrubs, Roses, Norway Spruce
Descriptive price list

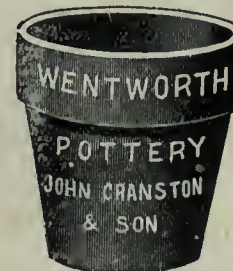
A. W. GRAHAM, ST. THOMAS, ONT.

"\$100" STRAWBERRY PLANTS

Highland, Hummer, Hundred Dollar, Abundance, 3 W's, Arnout, Evening Star, Ekey, Oak's Early, Golden Gate, Oswego, Saratoga.

150 varieties, including all that have proved of value. Send post card for prices.

E. B. STEVENSON, Maple Bank, GUELPH, ONT.



WENTWORTH POTTERY

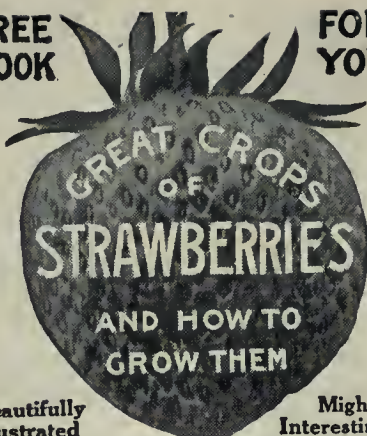
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FREE
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If you want to know how to grow big crops of big red strawberries and how to get big prices, send for our 1908 book. It tells all about soil preparation, setting, mating, pruning, cultivating, spraying, mulching, picking, packing and marketing. All of these essential features and many more are explained in such a way that you can't go wrong. It was written right out in the strawberry field by a man who has made a fortune growing strawberries, and he tells you just exactly how he does things. Send your address. That's all. The book is free.

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Covent Garden, London, England

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Commission only. All goods sold by private sale. Highest prices guaranteed. Correspondence invited.

Cables—POUPART, LONDON

References:

LONDON & COUNTY BANK, COVENT GARDEN
BANK OF MONTREAL, MONTREAL

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Cannas, best varieties. Dahlias, many varieties. Paennies, choice new varieties.

Write for Catalogue.

Campbell Bros., Simcoe, Ont.

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Bulletin on Miscible Oils

Reviewed by Prof. W. Lochhead

Home-made Miscible Oils and Orchard Tests of Miscible Oils.—Delaware Agricultural Experiment Station, Bull. 79, by Penny & Houghton.—Horticulturists appear to be as anxious to find out some easily prepared and easily applied cheap substance that will control the San Jose scale, as the alchemists of the middle ages were to discover the Elixir of Life. The lime-sulphur wash does not satisfy them, for it is abominable substance to apply. For some years, efforts have been made to prepare a cheap miscible oil that will emulsify readily with water. The Delaware station has done more perhaps than any other in the line of experimenting with soluble oils. The kerosene-limoid (K-L) mixture was well received a few years ago, but the verdict is that it is not thoroughly effective against the scale. A more viscid oil than kerosene was needed. Accordingly, experiments were begun with the heavy oils, such as paraffin oil, crude oil, and rosin oil, and so forth.

The miscible oil was prepared by mixing (1) the soap solution with (2) the heavy oils. The soap solution was made by heating to about 300 degrees Fahrenheit in a large iron kettle: Menhaden fish oil, 10 gals.; carbolic acid (liquid crude), 8 gals.; caustic potash, 15 lbs; and adding to this hot mixture: kerosene, 14 gals.; water, 22 gals. This on stirring forms a uniform liquid which does not separate on standing, and which may be kept for months.

To make the miscible oil (Delaware formula 34, considered one of the best), the following proportions are used: Soap solution (as above), 9 gals.; paraffin oil, 40 gals.; resin oil, 6 gals.; water, 1 1/4 gals. These mix well when cold. This miscible oil is mixed with about ten parts of water for spraying purposes. Thus, the writers state, nine gallons of soap solution will make 35 to 50 gallons of miscible oil, and this in turn form 350 to 750 gallons of spray material, at a cost of about one cent to one and a half cent per gallon. This miscible oil can be used along with Bordeaux by adding from two to five gallons to a barrel of Bordeaux. Professor Houghton, the entomologist, tested the different miscible oils on scale-infested trees, and found them very effective.

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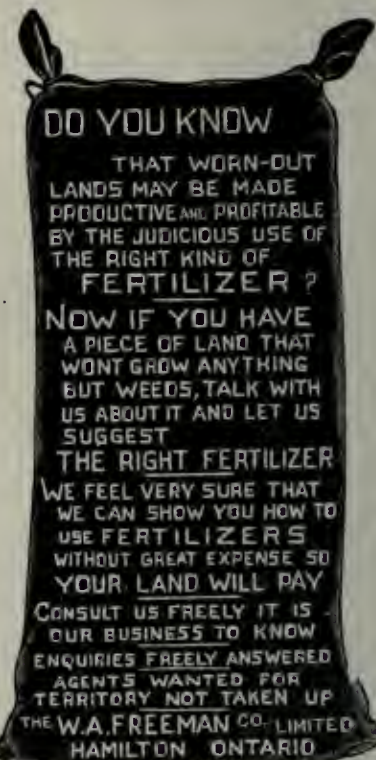
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Nut Culture in the Pacific Northwest*

Henry Dosch, Hillside, Oregon.

IN nut culture of all kinds, but more especially walnuts, three things are most essential, and it is difficult to say which is most important; they are soil, generation and variety. Nut trees of all kinds do well on most soils, even rocky ground, except heavy, stiff, clay soils, but do best in fairly rich soil as they are gross feeders but there must be no "hardpan." The sub-soil must be loose and open so that the tap-root can grow down as far as it desires, for so soon as it strikes hardpan the tree stops growing and, of course, lessens the nut crop, as nut trees make few lateral roots. This applies particularly to the walnut.

GENERATION

Walnut trees should be "second generation," either grafted or grown from first generation nuts. First generation nuts are produced on original trees, or on trees grafted from the original trees. These nuts when planted produce "second generation" trees and the nuts from these second generation trees are a little larger than the original or first generation, which is due to the peculiar soil and climatic conditions of the Pacific northwest, so well adapted to nut culture. Trees grown from second generation nuts retrograde very rapidly, producing nuts not half so large as even first generation and finally run out all together. Hence we must plant nuts from the original trees if we desire the best results and nothing but the best should or can be satisfactory.

VARIETIES

Varieties which I have found best adapted for the Pacific northwest by extensive experiments are Franquette and Mayette, as best adapted to our soils, climate and market, with a few Chaberte for confectioners use, giving preference in order named, as I think the Franquette is somewhat hardier, a more regular bloomer and a little more prolific, while the Mayette or Grenoble, under which this nut is known to the trade,

is finer in quality, not quite so hardy nor so prolific, but the nuts generally bring a little higher price which, in a measure, makes up the difference.

TREES OR NUTS FOR PLANTING.

For a number of years past, there has been considerable controversy about trees grown from seed of first generation bearing smaller nuts than grafted trees. I have not found it so, for I have just as large and fine nuts on my trees grown from first generation nuts as those from grafted trees, but also found that both kinds have some extra large nuts and some smaller. The difference in size is due to perfect pol-

Reads with Interest

I always read THE CANADIAN HORTICULTURIST with a great deal of interest. It should be in the hands of every Canadian who is interested in fruit growing.—M. Cumming, Principal, Agricultural College, Truro, N. S.

lination of the larger nuts and imperfect pollination of the smaller nuts. I fear, that this controversy was started by interested parties to discourage the planting of nuts and encourage the planting of grafted trees, which generally sell at \$1.50 a tree. Of course, one must be careful to secure the proper variety and generation of nuts, which heretofore has been very difficult to obtain; even the nuts I imported from France proved very unsatisfactory as to size and quality. However, there are many honorable dealers from whom first generation nuts as well as trees grown from first generation nuts, can be procured.

HOW TO SPROUT NUTS.

There are many planters who prefer to plant the nuts where the tree is to grow rather than the expensive grafted trees. For their special benefit, I repeat the *modus operandi*. The nuts for this purpose must be secured in the fall, and must be of first generation, either from the original trees or grafted trees, and known to be true as to that

point, else you will be disappointed when the trees come into bearing. Fill a box six inches with light soil and sand mixed, then put in the nuts, point end up, about one inch apart, cover three or four inches deep, and place boxes out of reach of rats, squirrels, or gophers, keeping the soil moist.

On examination in the early part of April, you will find all sound nuts have sprouted or ready to sprout, that is, they throw up two sprouts from the pointed end of the nut. One of these sprouts turns down over the nut and forms the cap root and the other continues upwards and forms the tree. Remove the nuts carefully, as these sprouts are very brittle and easily broken, which would make the plant worthless. Plant them where you wish the trees to grow, fifty feet apart (by far the best way), or in nursery rows about five inches deep and transplant the following spring. The young tree should be allowed to grow straight up, cutting away in the fall all side branches until the tree has reached a height of six feet when it should be allowed to branch out, but under no circumstance should the main stem be cut off at any time.

Walnut trees usually grow into bearing in five or six years; at twelve years, are in full bearing. It is not a slow grower as is commonly supposed. Three to four feet is not an uncommon growth in a season in good soil; besides it is a healthy tree, having, comparatively speaking, few pests to molest it, and once established lives to a good old age and proves profitable to generation with ordinary good care. The ground between the trees, until they come in full bearing can be utilized for berries, potatoes and vegetables, but no grain or grass should be grown.

HARVESTING

At harvest time the nuts fall to the ground as soon as the hull bursts, which it does when the nuts are ripe, and can be picked up easily and must be promptly, as squirrels are very fond of them; the few remaining ones may be beaten down with a pole or fishing rod. They

*A portion of a paper that was read at the last convention of the Northwest Fruit Growers' Association held in Vancouver.

should then be cured, either in the sun or subjected to a gentle heat in an evaporator to prevent mildew or becoming rancid. Sulphuring is practiced to some extent to supply the demand for bleached nuts, a most pernicious method. This treatment, while improving the color, proves decidedly injurious to the flavor of the nuts and lessens the keeping qualities. At the California experiment station, experiments with bleaching solutions have been carried on and it is recorded that very satisfactory results have been obtained with a mixture of soda, chloride of lime and water. However, it must be borne in mind that the bleaching of nuts is entirely unnecessary

of the affected cane, there are two rows of punctures, half an inch apart, running completely round the canes and so girdling them that the supply of sap is stopped. The tops soon wither and break off. These two girdles being completed, it makes a small hole a little way above the lower girdle and deposits in it a small yellow egg. From this egg, there hatches, in a few days, a small yellow grub which proceeds to burrow downwards, eating the pith of the cane and eventually causing its destruction.

The presence of these enemies is easily detected by the sudden drooping and withering of the tips of the canes. They begin to operate late in June and con-

Canadian Cherries

W. T. Macoun, Ottawa

Few good cherries of Canadian origin have been recorded. The only one which deserves mention is the Windsor, a cherry of the Bigarreau class, which owing to its superior hardness has proved a valuable acquisition. The following description is from "Fruits of Ontario":

WINDSOR

Windsor is a valuable late cherry for either home use or market, its firm flesh making it a better shipper than most dark-colored cherries; indeed, from the middle to the end of July,

when this cherry is at its best, there is no other to compete with it, the Elkhorn being just over. The tree is not an early bearer, and the fruit is very subject to rot in some locations, and needs thorough spraying with Bordeaux to prevent this fungus. Origin, by Jas. Dougall, Windsor, Ont.; tree, a vigorous, upright, symmetrical grower, healthy, very hardy and productive; fruit, large, fifteen



Eight-Year-Old English Walnut Tree that Produced Over One Bushel of Nuts in One Season.

and adds absolutely nothing to its food value; this process is simply carried on, to improve the appearance of the nut and will probably be carried on so long as people buy by the eye. Don't do it, unless the customer to whom you sell the nuts demands it and prefers spoiled to clean, healthy, wholesome and toothsome nuts.

Raspberry Cane Borer

Tennyson D. Jarvis, O. A. C., Guelph

The raspberry cane-borer (*Olberea bimaculata*) attacks wild and cultivated red and black raspberries. The insect is about an inch in length, with black body and yellow thorax. At the base

continue their work for several weeks. Hence, by looking over the raspberry plantation occasionally early in spring and removing all the withered tips down to the last ring, so as to insure the removal of the egg, this insect may be easily kept under control for they are seldom numerous.

In very old trees, restorative measures often fail to produce any lasting improvement.

Plant small fruits in rows so that the greater part of the cultivation can be done with the horse and cultivator. A sufficient number of varieties should be grown to keep up a succession.

sixteenths of an inch long by one inch wide, round, obtuse, heart-shaped; color, dark red, turning darker as it hangs; stems, one and a half inches long, set in a moderately deep cavity, in twos and threes; suture, obscure; flesh, yellowish with reddish tint; texture, firm, moderately juicy; flavor, rich and sweet; quality, dessert very good, cooking poor; value, first class; season, late July; adaptation, farther north than most Bigarreau cherries.

Each species of tree needs its own kind of pruning.

Feeble growing and unhealthy trees are, as a rule, the results of starvation, poor attention or unfavorable climate.

New Strawberries on Trial Last Season

E. B. Stevenson, Maple Bank, Guelph, Ontario

It would appear that there are more new varieties of strawberries that promised great things, just now than have appeared before in a long time. The future of strawberries never appeared brighter. The standard of excellence is now higher than ever before. Hence the great effort that is being put forth in the direction of new varieties that will not only leave the ordinary sorts behind, but surpass in excellence the well tried standards, as well. Among the most promising of the new varieties are Arnouts, Abundance, Hummer, Hundred Dollar, Virginia, King Edward, Beidler, Jaconia, McNeil, Evening Star, Chesapeake, Ekey, Helen Gould, and others.

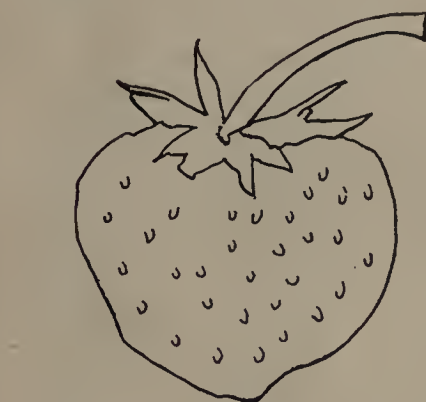
ARNOUTS
Arnouts (perfect) was originated by Mr. J. L. Arnout, of Pennsylvania, in 1905. The plant is a healthy, strong grower, good runner and productive. The berry is large, conical, bright scarlet with yellow seeds; flesh, white and pink, medium in firmness; mid-season to late; a good one. Mr. Arnout is so enthusiastic over his new berry that he offers "\$100 for one dozen plants of any variety that will excell the Arnout in size, productive-ness, flavor, color, quality, uniform size, healthfulness and vigor of plant."

HUMMER
Hummer (perfect) seems to have come from Michigan. It has proved a good one. The plant is strong, healthy, a good grower and productive. The berry is large, bright scarlet; flesh, pink, yellow seeds of good quality, firm; worth trial by all growers.

KING EDWARD
King Edward (perfect) was sent me by the originator, Mr. D. J. Miller, of

Ohio, in fall of 1906. What I have to say will be from a trial of fall set plants. The plant is about perfect, being about the largest and strongest plant that I ever saw. It is very healthy, no sign of rust on it. The runners take root easily and quickly. The plant makes runners freely and is quick productive. The berry is large, roundish, solid, bright scarlet and red seeds. The flesh is white and of best quality. It is very promising.

ABUNDANCE
Abundance (perfect) was sent to me by Messrs. Wodruff & Sons of New York. The plant is a strong, healthy grower, quite healthy and productive. The berry is medium to large, of a fine scarlet color with yellow seeds; medium firm; fair quality; medium to late season; worth trying.



CHESAPEAKE
Hundred Dollar (perfect) was sent to me by the originator, Mr. W. Hathaway, of Ohio. The plant is one of the largest and strongest; resembles King Edward, healthy and productive. The berry is of largest size, scarlet, red seeds, conical with blunt end; flesh, white and pink, mild in flavor, like Woolverton, solid; a good one and well worth a trial.

McNEIL
Chesapeake (perfect) was originated 1903 on Chesapeake Bay by Mr. J. W. Parks of Wicomico Co., Maryland, and introduced in 1906. The plant is very large, with thick leathery leaves, healthy, fair runner, medium in productive-ness. The berry is large, round with a nose, bright glossy scarlet, resembles Bismarck, with yellow seeds, solid; flesh, white and pink, firm; late in season, as late and as productive as Gandy; fine flavor; a good one, only not as productive as I would like but you cannot always judge from one season's fruiting. It is worth a trial.

Arkansas and is promising as judged from one fruiting. The plant is a dark green, strong, healthy, good plant maker and quite productive. The berry is large, oblong-roundish; flesh, red, medium in firmness, fine quality; worth a trial.

The above are the best of the new ones. I had twenty other new ones, none of which showed any points superior or even equal to the old standards. They may do so on further trial.



I received some thirty new ones last spring to fruit the coming season. Among the best of them judging by the growth are: Irena, Bower, Golden Gate, Great Scott, Chipman, Saratoga, Colossus, Mill's Seeding, Howard's No. 1, Gill, Goldsborough and Miss Baston. I shall have more to say about them after next season's fruiting.

The Currant Worm

Wm. Fleming, Owen Sound, Ont.

When the leaves of the red and white currant are half size in the spring, spray with a solution made of three-quarters of a pound Paris green to forty or forty-five gallons of water.

Spray when leaves are half opened. If left till later the currant worm will get the start. Apply on a sunny day. If rain falls inside of twenty-four hours, repeat the operation and repeat again in about ten or fourteen days.

You need not fear the effects of the currant worm if these directions are followed. Do not forget to spray first when leaves are "half open." The black currant needs no spraying.



Applying Lime-Sulphur Wash

R. M. Winslow, Guelph

The lime-sulphur wash for spraying was discussed at the short course in fruit growing held early in February at the Ontario Agricultural College, Guelph, by Mr. Robt. Thompson of St. Catharines and others. Mr. Thompson spoke of his use of the lime-sulphur wash, in which he thoroughly believes. As to its caustic effect, he stated that they no longer go to the trouble of covering the horses, or protecting the operators, except to vaseline the hands. Experience has proved that there is little in the talk about injury to harness, clothing, and so forth. The man who boils the wash is rather liable to take colds because of the sulphur. Mr. Thompson and several other St. Catharines' growers have their wash boiled at one plant, a method by

parts may have to be replaced every few days. Even where there is no San-Jose scale, lime-sulphur will pay for its application, by destroying peach leaf curl on peaches, oyster-shell bark-louse and almost all other scale insects on other trees, and it removes moss and fungus.

Pruning Bush Fruits

H. S. Peart, Jordan Harbor, Ont.

The pruning of bush fruits is very often neglected, whereas a little time and labor at this season may be made to give large returns. The fruiting habit of the red currant and gooseberry are so nearly alike, that the same methods of pruning may be practiced on each. The finest and largest fruits are produced around the base of short spurs coming out from the two and three year old wood. This

gives us a clue to the methods of pruning. A good rule and one easily carried out is to remove each year the two oldest canes at, or near the ground, and to allow two new strong shoots to take their places. Cut out all other new shoots starting from the ground. Head back these two new shoots fully one half to induce formation and growth of new lateral shoots near the

new canes should be headed back severely but never make the mistake of heading-in the lateral shoots if a large yield is desired.

Arsenate of Lead

R. M. Winslow, Guelph

At the short course in fruit growing held at the Ontario Agricultural College, Guelph, Prof. R. Harcourt spoke chiefly of the two great classes of insecticides, the food poisons, of which arsenous oxide (white arsenic) is usually the active principle, as in Paris green, London purple, lead arsenate, calcium arsenate, "Bug Death," and so forth, and the contact poisons, of which lime-sulphur and kerosene emulsion are the most used. With regard to the food poisons, Prof. Harcourt said that some classes of insects were becoming harder to kill with arsenic, and that possibly in the future we will have to find some other food poison. At any rate, it seems necessary to use somewhat more Paris green than was formerly used, especially the best ones we have now.

Arsenate of lead is replacing Paris green, because it is slightly cheaper, it "stays up" in the spray tank longer, it needs no lime, as it contains no free arsenous acid; it sticks to the tree much better, and there is absolutely no danger of injuring the plant. Any man can make his own more cheaply than he can buy it, by procuring the following materials and mixing them according to the directions. arsenate of soda, 10 ounces; acetate of lead, 24 ounces; water, 150-200 gallons.

Dissolve the arsenate of soda in about a gallon of cold water, in a wooden vessel; dissolve the acetate of lead similarly and mix the solutions after diluting them still more. Add water to bring up to the quantity above stated. The average wholesale price of arsenate of soda is nine cents, and that of acetate of lead seven cents. This solution contains just as much arsenic as in a mixture of Paris green containing 10 ounces to 100 gallons. It can be applied, moreover, at three or four times the strength and will not do injury to the leaf.

Most orchards are too heavily pruned, in fact a great many of them are butchered. Every section has a "professional" pruner, and the growers listen to his talk and follow his example. The result is many trees are practically ruined.—D. Johnston, Forest, Ont.

THE CANADIAN HORTICULTURIST would like to hear oftener from readers who grow raspberries, blackberries, currants, or gooseberries. Send for publication a description of your patch and tell how you plant, cultivate, prune, pick and market.



Spraying on The Coldstream Estate, British Columbia.

Photograph by B. T. Boies,

which it costs them only eighty cents per forty-gallon barrel, ready to spray.

The sulphur used must be finely ground in order to get the best results. Twenty pounds of lime and eighteen of sulphur to forty gallons of water, boiled forty-five to sixty minutes very vigorously, is highly satisfactory. Mr. Thompson said that some growers intend to use a long tank set on bricks for the boiling, with a fire under it. This method will be cheaper for most circumstances, although it occasions a slightly greater loss of sulphur through volatilization, and so a little more in proportion should be used. Mr. Thompson had his best result, from Port Colbourne lime which is by analysis, the finest in Ontario.

A fine nozzle, a well strained wash, good pressure of ninety to one hundred pounds, and a fair amount of wind, are essential to spraying lime-sulphur. As nozzles wear rapidly, the wearing

ground. All the new growths from the remaining old canes should be headed back if the variety is a strong grower and is likely to produce an excessive amount of wood at the expense of fruit.

Many people who make the mistake of treating the black currants the same as red currants, wonder why they get such small yields of fruit. It will be observed that while the reds bear their fruit around the base of the new shoots, the blacks produce their fruit towards the tips of the new growths. By removing a portion of the new growth, which arises from the two and three year old wood, half or more of the crop may be removed at the same time.

As blacks are usually very vigorous, three new canes may be allowed to grow each year and three old ones cut out, leaving a bush of eight or ten canes, instead of five to seven as recommended with red currants and gooseberries. The

Suggestions for Using Bedding Plants*

STARTING with the beginning of the season, the various Dutch bulbs are the first to attract our attention. They are easily cultivated and, therefore, most appropriate for the amateur. Exquisite effects and color schemes can be carried out; although their duration of bloom barely reaches more than four weeks, I think they make the most striking display of the season. Only the purest and clearest colors should be selected. Off colors and the peculiar magenta shades are hard to match with pure colors and are best planted by themselves, or far enough distant so as not to detract from them. Mixed beds containing a number of varieties look very well, but beds of all one color show better taste. Where a number of beds are planted, greater attention must be given to work out a harmonious color scheme. Pink, white and light blue blend admirably; next comes yellow, then red and yellow and the various reds. It is a great deal more pleasing to the eye to let the colors run into each other by degrees than to create too big a contrast. Colonies of crocuses, snowdrops and scillas, singly and several together, irregularly scattered on the lawn, look very charming.

Pansies, *bellis* and *myosotis* are also extensively used. Although the pansies come in a multitude of colors, they are mostly used mixed and often with *Bellis perennis* as a border. Little advantage has been taken of working out color schemes with pansies, and yet if we stop to study their rich tints, tints which I think cannot be found in any other plant, the possibilities are wonderful.

Following these come the summer plantings with cannas, geraniums, heliotrope, begonias, petunias, coleus, acalyphas, abutilon, salvias, verbenas and a great number of other plants too numerous to be mentioned.

Almost all bedding plants thrive and flourish best in full sunlight, except tuberous begonias and fuchsias, which do best in half shade, where there is plenty of indirect light; other plants, like some of our hardy palms—phoenixes, latanias, chamærops—the various fibrous-rooted begonias, like *semperflorens*, *Vernon*, *Schmitti*, and fancy-leaved *caladiums*, do well under both conditions.

The soil for cannas, musas, *ricinus* and *Caladium esculentum*, should be very rich, their growth will be so much more luxuriant; while the rest of the plants, like geraniums, begonias, verbenas, salvias, cuphea, ageratum, and so forth, also need enriched soil. Care must be taken not to use too much fertilizer; this will

result rather disastrously and the plants will show an abundance of foliage in place of flowers.

Bedding plants, before set out in their summer quarters, should be properly hardened off, they should be exposed freely to the air and sunlight at least two weeks before the planting season commences. Nothing serves this purpose better than the hotbed, no matter how much some of the growers are opposed to this sort of cultivation. It is true, the cost of labor is somewhat higher, but the superior results obtained fully justify the expenditure made, and

or less formal, they should not appear stiff; every plant should have plenty of room for full development, and where a number of varieties are used in one bed, the tall ones should be massed, but here and there one should rise above the lower ones, so as to present a loose and pleasing arrangement; in this manner, every plant will show its valuable points more advantageously. We can improve the bad points of one plant with the good ones of another.

Particular stress should be given to the selection of the various tints, blending richly-colored foliage tastefully with



Bedding Plants in Allan Gardens, Toronto

plants hardened off in this manner suffer but very little in transplanting.

We have plants of every desirable height, from two inches up to eight feet, some with a wealth of flowers, others again with richly colored foliage, some with coarser, others with more graceful features.

CONSIDER THE SKY LINE

In the arrangement of planting, one great object, which is one of the great principles in landscape gardening, is in many cases lost sight of, namely, the consideration of the sky line. Especially in large border plantations this should be applied; here we have tall plantings broken with lower ones, until they finally run out, to very low plants at the edge. In fact, in every bed, as well as in larger displays, the relation of one bed to the other should be treated in this way. While the beds are all more

the more gorgeous tinted flowers, so as not to create too big a contrast. Beds of solid colors, alternating with some of less contrast, will harmoniously tie the entire display together and this will help greatly to achieve the desired plan. It is in the designer's power to present a very brilliant or a very quiet picture, according to the scheme that is required.

Sub-tropical effects may be produced by the use of reeds and grasses in combination with large leaved plants. Try a bed with plants of "*Arundo donax*" and castor oil beans in the centre surrounded by cannas, and an outside border of "*Caladium esculentum*."

Rhubarb may be forced in the garden by means of boxes, without top or bottom, placed over the plants, banked around with manure and covered with glass.

* In the March issue an article appeared on where to use bedding plants. This article discusses how to use them, and is by the same author, Mr. Alois Frey, Chicago.

Good Taste in Gardening*

Dr. H. M. Speechley, Pilot Mount, Manitoba

GOOD taste in gardening should be applied, first, to the formation and arrangement of beds, secondly to the arrangement of backgrounds, thirdly, to the allowance for variations in the heights of plants; and, lastly, to the disposal of color—all four good practical points. Perhaps, someone may say, "Why not follow nature?" We reply, "Certainly; while it is not always possible in a limited garden to follow nature's lavish ways, nature supplies us with two good principles, of which one is, 'never be formal or stiff,' and the other, 'never make right-angled designs.'" Bearing in mind these two principles, we approach, first, the formation and arrangement of beds. It is well-known that good drainage is an essential point in making a flower bed, which, therefore, should be raised well above the level, thus ensuring good drainage, and the best exhibition of the flowers grown on that bed. You combine utility and good taste. It is not the beds themselves that you want to show, but the form and beauty of your flowers. Good taste demands also that your flower beds shall be shaped in curved and rounded outlines, just as nature disposes of her masses of flowers with here and there a straw stem or flower flung out, just to be as unconventional as possible.

AVOID ANGLES

Whoever saw a square mass of anemones, or bergamont, or sunflowers, or golden rod, upon the prairies? Unconsciously, people unskilled in gardening wonder why So-and-so, who has as good or better flowers than his neighbor, cannot make so good a show. Dispose your curves, then, as naturally as possible, so that the eye glances readily from curve to curve. It is all in good taste; there is none of that abruptness none of that stiffness, none of that conventionality, against which the artistic eye can protest.

ABOUT ARTIFICIAL PATTERNS

Under the same ban come all such artificialities as large so-called ornamental pots, tubs, or cans, all of which are an abomination for outdoor gardening. For the same reason, geometrical figures are not in good taste. It certainly shows ingenuity when a man cuts out a bed to the shape of a Maltese cross, or makes wonderful patterns and designs in carpet bedding, but it is just as certainly poor gardening. That is why public gardens are so distastefully formal when run by men who

will make artificial patterns. It is not in good taste. Therefore, just as nature does not reveal all her beauties to you at



The Iris is Hardy and Beautiful

once, but hides them behind many a curving outline, so the lines of your beds will be in various curves, which will produce a series of pleasant surprises for your guests.

Often you will see a perfectly straight border full of all kinds of beautiful flowers, it is true; but open out that straight cut edge with a curving bay or two, and you will at once see the improvement. The same may be worked out in the arrangement of garden paths, whether of gravel, clinkers or cement. A cement path is essentially formal, and not really suitable except for the main business approach to a house, but even a slight



Phlox Drummondii Growing at Ease

curve will rob the cement walk of much of its formality. As, however, the other paths are likely to wander more or less in and out amongst the garden beds, you will probably dress them with gravel

or clinkers, and so dispose them that they will harmonize with the curving outlines of the beds.

BACKGROUND OF GREEN

Now we come to our second point, the arrangement of back-grounds. Regarded as an artistic scheme, a garden requires as its natural setting a background of green; no other color shows up the brilliance of flowers so well. But in this country of strong winds and eccentric frosts, the background should serve as a protection against both wind and frost. It is not, however, desirable in a garden to have too many tall trees, especially if their roots go far afield. I recommend, therefore, the use of hedges, as backgrounds, both for small and large gardens.

If you want a hedge ten feet in height, Manitoba maple makes an excellent one, but if you require hedges of from four to five feet high, nothing better can be planted than hedges of lilac, caragana or Tartarian honey suckles. Happy is the gardener who can have hedges of each kind, because each flowers early, and each has its own peculiar shade of green. Spruce hedges are not to my taste, especially if cut to odd shapes. The cutting of hedges into the shape of birds and beasts, or artificial objects is, to my mind, a monstrosity, and in thoroughly bad taste. It is usually absolutely necessary to clip a hedge but formality is avoided by rounding off the top and the sides, and never cutting it on the square. You see the same effect in the rounded masses of willows which border every sloughy spot upon the prairie. Clipping will have to be undertaken at least three times through the spring and early summer, not only to keep back the fierce young shoots but to prevent a too lofty hedge from depriving the flowers of the light they need.

VARIETY OF CONTRAST

Our third point is the allowance for the variation in the height of plants. Good taste demands of the gardener that he shall arrange all his plants so that not only shall each plant be seen to the best advantage, but as far as possible, each plant shall set off its neighbor by way of contrast. Young gardeners have always to learn this important point by their mistakes, just as most of us have to learn many other things in life. It is obvious that if you plant a dwarf nasturtium between a tall larkspur and a Shirley poppy, you will completely hide the nasturtium, especially if the larkspur is to the front.

The easiest way to think of this is to imagine that you have a broad border to

*Extracts from an address before the recent Convention of The Western Horticultural Society held in Winnipeg.

plant all down the side of the garden. You wish it to hold herbaceous perennials in the background and in the middle distance, while in the foreground you would like to plant in due season a selection of hardy annuals. First, then, I would caution you against placing in the background any of the tall sunflower tribe, and especially goldenglow. Put these in clumps and odd spots amongst shrubs, preferably well back in the garden, where their ragged underlegs are easily concealed. Goldenglow is a terrible plant to sucker out in every direction to the harm of all its neighbors. The best background plants are hollyhocks and the various tall larkspurs. The latter with monkshood grow very well in the neighborhood of trees. In front of these you may grow perennial

With regard to stocks and asters, while they mix well with many other plants, it is only fair to these splendid flowers, and well within the best canons of taste, to give them if possible the main occupancy of separate beds.

Sweet peas should be grown in separate beds in order to enjoy their beauty and wonderful flowering capacity. Sweet peas are grown in the best taste only when they are grown on bush supports, rather than on the more formal wire netting. These brief hints will at least give some indication as to the most satisfactory stocking of a large bed.

BLENDING OF COLORS

Our fourth, and last point, bears on the disposal of color to the best advantage, a most important question of taste,

orange lily amidst a mist of waxy blooms of the zygadene.- So indeed tulips glow more brilliantly when seen poised amongst the spring greenery of a perennial herbaceous border than when trimly packed in more or less formal beds. A mass of Shirley poppies make a wonderful blend of color that no effort of yours can spoil, and only requires a pure green background to be seen at its best.

SOME SUGGESTIONS

For a protected garden only, pink or white hollyhocks, pale yellow evening primroses, pale blue globe thistles and pink mallows will make a fine mass of color. For a dwarf bed, plant centrally some coreopsis, annual or biennial; surround these with white candytuft, and early blue Phacelia campanularia; and on the outer edge add the dwarf empress red nasturtium, alternating with dark blue lobelia. The result will, I think, be very pleasing, and in good taste. It must always be remembered that if planted in masses and with due regard to size of plants, beds of our hardy annuals are scarcely ever out of taste, so that the most inexperienced beginner, if he or she avoids crowding, which is in the worst taste, will be able to have a very beautiful and charming garden, without troubling about the refinements of gardening, until experience has educated the patient learner.

The Hardy Clematis.

Among the best of woody climbing vines is the clematis. Two of the most hardy and desirable of these are "Clematis paniculata" and "C. Jackmani." The former bears pure white, star flowers and the latter, violet purple flowers, measuring from four to six inches across. The former will cling well to a chicken-wire trellis; the latter does better as a pillar or porch climber. A white variety of the Jackmani type is "Clematis Henryi."

Probably the best soil for growing the clematis is one that is deep, mellow, rich and naturally moist. In dry soils and seasons, water must be applied freely for the large-flowered kinds. As soon as young plants begin to run, provide a support.

Prune old clematis vines in early spring. Cut the large flowered kinds back to the ground each year. Unless wanted for permanent bowers, the other types may be treated similarly. They will live, grow and increase in beauty from year to year.

THE CANADIAN HORTICULTURIST wants photographs of lawns and gardens that have been made or improved by amateurs. Take a photograph or two of them before work is started this spring, and then others later.



A Border of Alyssum, Geraniums and other Things easily Grown.

phlox in clumps, alternating with the tiger lily and the orange lily. Next, mix in clumps, early and late irises, German, Spanish or English, and not too many peonies, because they need so much room. No other spring flower is better suited to our western protected gardens than the peonies, whose blooms are more magnificent than the rose, and smells as sweetly, while its glossy leaves are an ornament to the late fall. Now you may put in day lilies, late tulips, dwarf larkspurs, Iceland poppies, sweet williams, pinks, coreopsis, and even an aster or two, with here and there a stock; while to the front together with pansies you can plant such hardy annuals as the dwarf nasturtiums, and snapdragons, candytuft; phlox, petunia or verbenas.

because it must be clear to anyone that to plant a pink geranium beside a red is as much a mistake as it is satisfactory to plant red and white geraniums side by side. The blending of colors in your garden is a fine exercise of imagination and needs experience. Every summer I try to imagine what next summer's garden shall look like, something different from the bed as it grows before me. You have to keep in mind also the habit of a plant, whether it will bloom early or late, or you may find that your calculations are upset. Nature makes some marvelous blends in very simple ways, to wit, a mass of coneflowers is flung in a ruddy brown sea of top grass, and the effect is handsome. Again, in excellent taste, is the effect of the burning cups of the

Have a Flower Garden on the Farm

M. J. S., Port Kells, British Columbia

HAVE you a flower garden? One that is always bright with flowers from spring until fall frosts? If you have, you are fortunate. Such gardens are not the rule in most places. On many farms there is a small place somewhere near the house, known as the flower bed, but usually flowers are scarce, or there are none at all, and the bed is full of weeds. There is no reason why there should not be a nice flower garden around most every farm house.

You often hear the remark, "What lovely flowers you have. I can't get mine to grow." There must be something wrong somewhere, for flowers are not hard to grow. They require a little attention, especially when young, but when you get to know their needs, they are very little trouble, and will repay you many times for their care.

NICE PASTIME FOR GIRLS

Are you going to grow flowers this year? Perhaps some of the girls will. A little work in the garden will be a pleasant, healthful change from so much house work. You can, and will, if you try, grow just as fine flowers as anyone. The soil will not hurt your hands, or injure your health.

It makes little difference who grows the flowers. What is needed is to look after the work well, and you will have something to be proud of. You will learn much each year, and will be able to look after more as you learn.

The ground in which to grow the plants should be especially selected and cared for. Most flowers like a rich, mellow soil, not inclined to be too dry. Well-rotted cow manure is the best fertilizer. The manure, besides enriching the ground, helps to keep plenty of moisture in the soil, and flowers need plenty of moisture in dry weather. A good sprinkling of hardwood ashes, will improve the color of the blooms.

As soon as possible in spring, manure your garden well and dig with a spade. Dig it two or three times before sowing or planting, so as to get the soil in good condition. Rake the surface smoothly.

KINDS OF FLOWERS TO GROW

What are you going to plant? The seed catalogues have such a variety, one hardly knows what to select. A few good sorts will suit the beginner best, and you can increase your varieties each year. Now is the time to get your seed. Here are a few that will give you large quantities of lovely flowers: Pansy, phlox, aster, sweet peas, dianthus, (China pinks) daisy, zinnia and poppy. Look these up in the catalogues and see what is said about them. Always deal with a reliable firm. These varieties will not cost much and are very easily grown.

Summer flowering bulbs also are very easily grown. The gladiolus is the best for the autumn. They are not expensive and the flowers are grand. Plant in good soil in May, June or even July, about four or five inches deep, and about the same distance apart. With a little cultivation they will do the rest.

START SOME SEEDS INDOORS

Of the above named seeds, sweet peas and poppies should be planted out of doors, as they do not transplant well. Sow peas as early as possible. The other varieties can be planted in the house and set out in the open ground when the weather becomes favorable. It is the best way, but it requires a little care. The plants will bloom earlier and produce more flowers when started indoors, and transplanted. You will get more seeds to grow, too, when sown in the house (if you take care of them), than outdoors, where they are exposed to all sorts of weather.

Small cans are the best to start the seed in. A can is better than a box in many ways. It is easily warmed through, readily transferred from place to place, and, should you chance to upset one, everything is not lost. To prepare the cans, paper them, either with fancy paper, or lead foil, to cover the rust, then make a few holes in the bottom, put in about one inch of charcoal, and fill the remainder with a mixture of one-half fine earth and one-half leaf mould, or well rotted material from the bottom of a stack. Press firmly into the can, but do not pack tightly. Now, sow the seed, (one variety in a can will be enough) and cover with the earth mould mixture. The leaf mould is to prevent the soil packing solidly when watering.

Place something over the mouth of each can to keep in the moisture. A piece of heavy woollen cloth cut to fit the top of each is best, or tie paper over the top. Set the cans in a warm place near the stove. Never place them in a cold window. Water as often as required; never let the surface become dry. Should any seeds appear on the surface through watering, press them under with a piece of wood. Water lightly and often. Do not flood the seeds.

As soon as the plants begin to appear (it may take ten days or two weeks for some) place the cans in a sunny window in not too cold a room. As they grow, remove to a cooler window, to harden them. Give them plenty of sunshine. Water occasionally, and stir the surface with a little wooden stick. It may be necessary to transplant some of the plants into roomier quarters as they grow larger. Take a knife blade or the handle of a teaspoon, and carefully lift

out the desired number, and plant them in a box or can in the window. Do not let the sun shine full on them for about a day after transplanting. Water the transplanted ones well. If the seeds are not started too soon, it will not be necessary to disturb them until they are to be set outside.

When ready to plant out in the open ground, soak the cans in water and take out all the plants at once. Separate carefully and set in place. Spread the roots well, press the earth over them, and pour a little water over each, unless it be a very moist day. Never set out the plants on a bright day—always on a dark or rainy one. Have the ground already marked out to receive the plants before you start. You will find them more easily cared for if each kind of flower is planted in a bed by itself.

Keep all weeds down, and stir the surface of the ground around the plants frequently, whether there be weeds or not. Always cultivate after a shower of rain. This will preserve the moisture. A good watering occasionally is good for flowers, but you should cultivate the ground shortly afterwards, or it will dry out in a short time. When your flowers begin to bloom, do not allow them to go to seed, and they will bloom longer.

After the plants are placed in the ground, cultivate as often as you can, especially after rains; keep down all the weeds, and do not allow flowers to seed. Above all things, never start a garden, unless you can keep the chickens out.

To Have a Good Lawn

There is no reason why anyone should not have a good lawn. Simply apply in the early spring, a liberal sprinkling of good commercial fertilizer. Manure brings weeds, and though there are bound to be some anyway, you will have fewer if you use a commercial fertilizer. A few weeds will not hurt the appearance of the lawn if the mower is run over it with sufficient frequency. This should be done when the grass is growing well about three times a week. Use a good mower, keep it well oiled and it will be a pleasure to use it. Have the blades set high enough to leave from one and one-half to two inches of grass height.

If you mow the lawn as often as suggested, do not rake up the clipped grass but let it remain as it will settle among the growing stalks and form mulch, which will help to fertilize the soil. The only way to get weeds out, if you are determined to do it, is to take them out by the roots, one by one. If the weeds are plantain, you need not take the trouble; they are there to stay.—W.

What Amateurs Can Do in April

THE first work in the vegetable garden should be to attend to the asparagus bed. Take off the covering of manure it received last fall and fork

parsnip row so that cultivating may be done between the rows if necessary. The lettuce can be used before it interferes with the crop of parsnips.

A week or two later, beans, beets, carrots and salsify may be sown. Never sow seeds when the ground is wet and sodded.

If you sowed seeds of early cabbage in the hotbed last month, the young plants may be transplanted about the end of April or early in May. Seed of late varieties may be sown in the open ground about the end of May and transplanted about the first of July.

Sow the seed of egg plants in a seed box or hotbed about the middle of this month and transplant to the open when danger of frost is passed.

Sow early varieties of radish as soon as possible and at intervals of two weeks for a succession. Good varieties are Rosy Gem and French Breakfast. Do not forget a few early turnips, such as Golden Ball, for table use.

WITH THE FRUITS

All small fruit pruning should be finished before the middle of this month. If not already done, conclude the work on your currant and gooseberry bushes at once as they break into bud early.

If you have peach and plum trees and there are mummied fruits hanging upon them, remove the mummies at once and carry them away or bury deeply. Give the trees a good spraying with Bordeaux mixture and Paris green.

The mulch on the strawberry bed should be taken off. Leave a portion of it between the rows to conserve moisture. Dig out and remove all perennial



A Back Yard that a Little Labor and Expense Improved Greatly Last Season

Many back yards appear worse than this in spring and remain so all summer. A few minutes work each day would make them places of beauty. This photograph was taken at the residence of Mr. Arthur Blakely, Toronto

the soil over lightly around and about the plants. Do this as soon as the frost is out of the ground and the soil is fit to work. If manure was not applied last fall a light dressing may be given now and worked in.

Every garden should have an asparagus bed. It is the earliest and most acceptable of early vegetables. A bed may be started by sowing seed as early as the ground can be worked. Sow in drills an inch deep and three feet apart. If you can secure two year old plants, they will give better results than by sowing seeds. Plant them eight inches apart in rows three feet apart. Have the asparagus plot on deep, rich land, where water will not stand in winter or spring.

Among the first vegetable crops to sow or plant are peas, spinach, lettuce, parsnips, parsley, leeks and onions. Always have the seed bed well prepared, particularly for onions. A little frost or snow after these seeds are in the ground will not hurt them.

Parsnips and parsley seeds are slow in germinating, often taking four or five weeks. It is a good plan to sow a few seeds of lettuce with these. The lettuce will come up quickly, marking the



The Same Back Yard as it Appeared the Following September

Many perennials were planted that make simply a start the first year. They should grow vigorously and bloom profusely this summer and fall. It is worth while to clean up and plant.

weeds as soon as they appear, such as dandelion, twitch grass and so forth.

Have you a strawberry patch? If so, how did you plant it, and what are your methods of growing? Tell your experience to the readers of THE CANADIAN HORTICULTURIST. Send a photograph of the plantation if you have one.

With all small fruits it is a mistake to plant before the soil is thoroughly prepared and enriched.

THE FLOWER GARDEN

Make a hotbed for raising petunias, phlox, asters, cockscombs, and other annuals. For the amateur who has not a greenhouse or hotbed, windows with a southern exposure may be used for starting seeds in boxes.

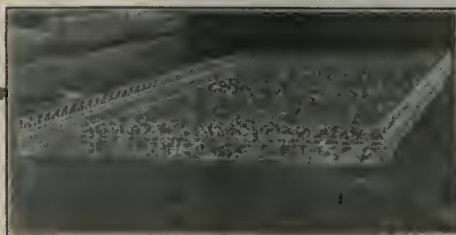
Use shallow boxes with holes in the bottom for drainage. Sow in light, sandy soil. Very fine seeds do not need to be covered. Sow them on top of the soil but have the soil moistened beforehand. After sowing, the seeds should be pressed with some flat object to force them in evenly. After germination begins, keep the soil moist. Do not give too much water at once so as to avoid washing out the seeds. When the plants are up, more may be given.

Large seeds may be planted deeper. Plant in depth from one to four times the diameter of the seeds. Asters, balsams and zinnias are seeds of this type.

Sow outdoors as soon as the ground is dry enough, seeds of mignonette, annual wallflower, snapdragon and sweet peas.

Do not sow nasturium seed too early as the young plants are liable to be damaged by late frosts. Better leave them until late in May.

Seedlings of annuals started inside should be transplanted when the second



One Means of Protecting a Bulb Bed

pair of seed leaves are in course of development. Handle them carefully. It is best to allow a small quantity of earth to adhere to the roots. Make a small hole where the plant is to go. Place the plant and press soil firmly around it.

Strike in boxes, of sand, in the hotbed or house, cuttings of coleus, ageratum, geranium and lobelia. As soon as rooted in about ten days or two weeks, pot them in small pots. Give them a watering and shade for a few days until the roots start. As soon as they are rooted,

they should again be placed in sun and light.

Divide the roots of cannas. Put them in boxes, upon the bottom of which should be placed a couple of inches of soil. Water lightly, and expose to the light. After they have started into growth, they may be re-potted if so desired. Dahlias, also, may be divided for summer growth.

Plant or transplant perennials, such as peonies, deliytras and German iris as early as possible. Roots of perennials that are large should be divided.

Uncover the bulb beds towards the middle of the month if the weather is good. Remove the litter with a fork and avoid breaking shoots that have come through the ground.

Prune hardy roses. Cut out the weak wood and shorten the stout growths to within six inches of the ground. Place a liberal dressing of cow manure around the roots.

As soon as all frost is out of the ground and the weather is fairly dry, roll the lawn. If the sward is in poor condition, use some standard complete chemical fertilizer. Trim the grass edgings evenly. There is nothing that adds so much to the appearance of walks and driveways as clean, well-kept edgings.

Much of our small, imperfect, light-colored or wormy fruit comes from trees not growing under favorable conditions.

A Planting Table for the Flower Garden

Dates for sowing depend upon local conditions. Those mentioned are for early districts.

NAME	TIME TO PLANT		DEPTH TO SEED	HEIGHT OF PLANT	DISTANCE TO TRANSPLANT	SEASON OF BLOOM		COLOR OF BLOOM
	INDOOR	OUTDOOR				BEGINNING	LENGTH	
Ageratum	March	June	1/8 inch	6 in. to 1 1/2 ft.	1 foot	July	3 months	Blue.
Alyssum	March	April	1/8 inch	4 to 6 inches	.6 inches	July	3 months	White.
Aster	Feb.	May	1/8 inch	15 to 18 in.	1 1/2 feet	July	3 months	White, pink, red, yellow.
Calendula	April	May	1/8 inch	1 foot	.8 inches	June	3 months	Orange and yellow.
Candytuft		April	1/8 inch	1 foot	.6 inches	June	4 months	White.
Carnations	March	May	1/8 inch	1 foot	.6 inches	July	3 months	White, pink, red.
Chrysanthemums	March	May	1/8 inch	4 feet	1 foot	August	3 months	Yellow, white.
Cosmos	April	May	1/8 inch	.8 feet	18 inches	August	3 months	White, pink.
Dahlia	March	June	1/4 inch	.8 feet	2 feet	July	4 months	White, yellow, pink, purple, maroon.
Dianthus	March	May	1-16 inch	1 foot	1 foot	May	4 months	Pink to red.
Gaillardia	March	May	1/8 inch	1 1/2 feet	2 feet	July	4 months	Yellow and red.
Heliotrope	March	May	1/8 inch	.6 inches	1 foot	July	4 months	Violet, purple and white.
Larkspur		May	1/8 inch	1 1/2 feet	2 feet	June	5 months	Blue.
Lobelia		April	1/4 inch	1 to 2 feet	.6 inches	June	3 months	Blue.
Marigold	Feb.	April	1/8 inch	1 foot	1 foot	June	3 months	Orange.
Mignonette		Feb.	1/8 inch	1 ft. to 15 in.	.6 inches	June	4 months	White.
Nasturtium	March	May	1 inch	.5 to 6 ft.	1 foot	June	5 months	Orange, yellow.
Nicotiana	March	April	1/8 inch	.2 to 3 ft.	1 foot	July	3 months	White, red.
Pansies	Jan.	March	1/8 inch	.6 inches	.6 inches	May	5 mon.	Purple, white, mauve, violet.
Petunia	March	May	1-16 inch	15 inches	1 1/2 feet	June	5 months	Purple to white.
Phlox	March	May	1/8 inch	.2 feet	.6 inches	June	4 months	Red, white, purple, crimson
Poppies		Feb.	1/8 inch	.14 inches	.8 inches	June	4 months	Scarlet.
Portulaca		June	1-16 inch	.6 inches	.2 feet	June	4 months	Crimson scarlet.
Salvia	March	June	1/8 inch	.2 feet	.2 feet	July	3 months	Scarlet.
Scabiosa	March	April	1-16 inch	.2 feet	.4 inches	June	5 mon.	Red, purple, pink lilac, white.
Stock	March	May	1/8 inch	1 1/2 feet	1 foot	June	2 months	White.
Sweet William	March	April	1-16 inch	.6 in. to 1 ft.	.6 inches	June	4 months	White, crimson, scarlet.
Sweet Pea		March	3 to 5 inches	.6 feet	.6 inches	July	4 months	White, purple, red, pink, violet, maroon.
Verbenas	March	June	1/8 inch	1 foot	1 foot	June	4 months	Purple.
Violas	March	May	1/8 inch	.6 inches	.6 inches	June	4 months	Purple to white.
Zinnias	March	May	1/8 inch	1 foot	1 foot	June	6 mon.	Orange, red, scarlet, salmon.

Root Maggots and How to Treat Them

Dr. James Fletcher, Dominion Entomologist, Ottawa

AMONG the insects which the market gardener must consider every year, are the root maggots that eat the roots of onions, turnips, cabbages and cauliflowers. The root maggots are enormously abundant in some years. In those years it is almost impossible to control them. There is as yet no practical remedy which will always give us perfect immunity from attacks of these insects. The eggs are laid by small flies, very much like a house fly, but not half as large, close to the ground, on the stem, or near the roots of the plants they attack. The eggs hatch in two or three days, and at once bore into the stem of the onion, radish, or cabbage; and if they once get inside, you cannot reach them with any remedy.

The preventive remedy, which has given the best results, is known as the tar-paper disk. This is a piece of ordinary tarred building paper, about three inches square, split from the centre to one side, so that you can put it around the stem of the plant at the time it is planted. The tarred paper disk is pressed close to the ground, and the creosote in the tarred paper, prevents the insects from laying their eggs upon the stem of the cabbage, consequently, its roots are not attacked. With fresh tarred-paper, we can protect a very large proportion of the cabbages in a plot; but even with that protection in years of great abundance, we have seen clusters of eggs laid even on the tarred-paper. Last year there were root maggots at Ottawa, and we did not find a single egg laid on any of the plants where the tarred-paper disks were used. These are made very easily with a punch, and the time required to put them on is not very considerable.

INSECT POWDER OR HELLEBORE

Another method, which has given us good results at Ottawa, is applied about July 1st, when the effects of the maggots become apparent. You can generally detect cabbage plants that are attacked, by the bluish appearance of the leaves. I do not advise you to treat only those plants which show they are injured but you should treat them all as a regular method of culture. When doing this draw away the earth from around the stem of the cabbage and see whether or not it is injured. If there is any sign of injury, the maggots may be killed with a decoction made of two ounces of insect powder or two ounces of hellebore in an ordinary pail of water. Mix with hot water first and then fill up with cold water. Draw the earth away from the

roots of the cabbage or cauliflower and then take a cupful of the decoction and pour it in. The poison from the insect powder kills any of the maggots that are lying in the soil around the roots of the cabbage and the moisture of the mixture applied at that time is very beneficial and gives the plant a push forward so that it will, as a rule, outgrow the injury done by the maggot. With us in Ottawa, July 1st, is the time to do this, and the results have been very satisfactory.

CARBOLIC WASH

With onions, the attack occurs very early in the season and we have found both for onions and radishes, a good remedy in the carbolic wash, known as the Cook wash. This consists of one pound of ordinary soap or one quart of soft soap, dissolved thoroughly in a gallon of hot water, and when it is dissolved turn into it half a pound of crude carbolic acid. Boil for five minutes and then you

to put on any more. This will keep the flies off sufficiently long for you to get your crop of early radishes quite clean.

In the case of onions you must watch them longer. If they are in light, sandy soil, I have found a good remedy is to take a broom as soon as the bulbs begin to form and walk along the rows of onions and brush away the sand from the tops of the bulbs. The broom will take the sand away from nearly three-quarters the way down the onions and unless the sand is well up to the top the maggots will not work there. In heavy soil, this is not practical, but in light, sandy soil I have found it a good protection. If any of you are growing onions in light, sandy soil, it will be well for you to try this, but the chief standby is the carbolic wash. As I have said, however, we have not as yet any practical remedy by which maggots can be entirely prevented; but in Ottawa, I have grown crops of onions



A Well-kept and Well-managed Market Garden

Home and farm of Geo. Syme & Son, Carleton West, Ont.

have your stock emulsion. When you want to use it, mix one quart with 100 parts of water and apply as a spraying mixture directly on the plants or pour it along the rows, either with a sprayer or with a watering pot. You can go along the rows of onions as fast as you can walk at an ordinary pace.

When the young onions first appear above the ground, give them the first treatment and repeat once a week for about four times in the spring. By that time, the first crop should be ready for market and it is not as a rule necessary

and radishes when other people close to me had none. The smell of the carbolic wash keeps away the egg-laying flies.

FRESH GAS LIME

An experiment which gave good results in a large field of onions where the land had been planted to onions for several seasons and was strongly fertilized and well kept up and had grown remarkably good onions for years, was based on the same principle. The onion maggot appeared suddenly and the whole crop would have been lost. After they had been cleaned thoroughly, the culti-

* Part of an address delivered before the Ontario Vegetable Growers' Association at last convention.

vator was run between the rows and then a light dressing of fresh gas lime was broadcasted over the field. The gas lime is not a practical remedy to recommend because a supply is not always available, but if you happen to be near gas works and can get it, it is a very good thing to use. Gas lime is useful because the strong odor it gives off drives away the flies and the ammonia in the lime makes it a strong fertilizer. It must be used with caution for if a lump lies up against the plant, it will burn it. About twenty bushels to the acre was used in this instance and care was taken to sprinkle it between the rows. To clean land, 200 bushels an acre might be put on in the autumn and plowed under in the spring. If gas lime when fresh comes up against the roots, it will destroy them.

CHEESE CLOTH TENTS

A method of growing radishes and cauliflowers which has been used with success lately is that of covering the plants over with a cheese cloth tent or enclosure. Where it is done on a small area, it has given very good results, but the lack of light is the chief objection. With cauliflowers, it gives excellent results, but with onions, it is not so successful. In amateur gardens, I have seen beautiful cauliflowers grown under covers small enough to be moved by hand, where none at all could be grown in the open. The covers were six feet long, three feet wide and two feet high. They were removed after sundown to hoe the plants and then replaced. The flies which lay the eggs from which the maggots come for most part, work in hot sunshine.

SULPHATE OF IRON

A sulphate of iron solution, one pound to the gallon of water, poured around the roots of cauliflowers and cabbages, also gave good results. The experiment will be repeated next season.

Planting Potatoes

H. A. Blundea, Sarnia, Ontario.

The potato will grow in almost any soil of ordinary fertility, but for an even-sized, marketable and edible tuber a well-drained, sandy loam is the best. The soil is best prepared in either of the following ways, namely, by manuring with well-rotted stable manure or by plowing under a crop of clover. If the former method is adopted the land should be plowed the previous autumn, and the manure evenly distributed at the rate of from ten to twelve tons to the acre, the following spring. After the manure is spread the land should be thoroughly worked with a disc harrow and then with a smoothing harrow so as to thoroughly incorporate the manure with the soil. For the latter method the best way is to plow under the crop

of clover in the spring as early as the land can be worked, followed by discing so as to break up the clover sod into as small particles as possible.

PLANTING

The seed should be cut the desired size and planted as soon as possible to avoid drying. If planting by machine it can be set so as to plant any desired distance in the row as well as between the rows, as well as the depth of planting, which should be about three inches in loose soil. For hand planting the handiest way is to take a heavy corn marker so as to mark the rows from thirty to thirty-six inches apart and about three inches deep, planting the seed or sets from ten to fourteen inches apart in the rows

the pot plants were stunted, while the others were kept growing with no check. For the benefit of those readers of *THE CANADIAN HORTICULTURIST* who, like myself, work only a few acres in mixed gardening and whose patches of tomatoes consist of only a few hundred plants, I will give a few facts from my experience.

Fourteen years ago I purchased 200 six-inch pots, and planted them with tomato plants in a rough greenhouse, placing the pots as close together as I could. When the plants met, I placed the pots farther apart, so as to give at least ten inches for each plant. I planted also the same number of plants in hotbeds.



A Exceptionally Heavy Growth of Potatoes

Grown last season on truck farm of Mr. A. W. Shuter, Bracondale, Ont.

according to fertility of the soil. The rows of seed should be covered with a double mould board plow so as to leave the soil in a high ridge over each row. Cultivate throughout the season to keep the soil loose and to keep down weeds.

Growing Tomatoes in Pots

S. B. Curtis, Toronto.

In the course of an excellent address delivered by Mr. R. H. Lewis, of Hamilton, at a recent meeting of the Toronto branch of the Ontario Vegetable Growers' Association, he mentioned the experience of one of his neighbors, who had experimented with starting tomato plants in pots (four-inch, I think), with the result that they were two weeks later than those grown in hotbeds. The reason given was that

On June 2, I planted the whole lot of 400 in the field. They were all good plants out of the same seed-bed, the only difference being in treatment of same. The pot plants had numerous stems as high as the main stem, while the hotbed plants had only a good main.

They were planted side by side, two rows of each. A rapid growth set in with the result that I gathered tomatoes for fully four weeks from the pot plants, and sold by the pound, before I had anything worth mentioning from the hotbed plants.

The conclusion that I came to is that in small pots the roots soon become clogged, with little to feed upon, and become stunted, whereas in larger pots, they are not punished to the same extent. However, I would not advise the use of pots to any great extent.

(Continued on page 93)

OUR QUESTION AND ANSWER DEPARTMENT

Readers of The Horticulturist are invited to Submit Questions on any phase of Horticultural Work

Removing Moss from Trees

Kindly advise me in respect to the strength of potash that it would be safe to apply to apple trees, twenty years old, to remove rough bark and moss. How many pounds to ten gallons of water, and how often would it be safe to use?—Joseph Burrell, Jr., Yarmouth, N.S.

It has been found from experiment that a two per cent. solution of caustic potash will remove moss and lichens from trees satisfactorily and will not injure the trees when they are dormant. Even a two and a half to three per cent. solution may be used without injury to the trees when dormant, but this strength is not necessary, and, as caustic potash is unpleasant to use even in a two per cent. solution, we should not advise using a stronger one. One thorough application would accomplish much, but two applications would be better and should be sufficient.

Scale on Fern

I am sending a part of stem taken from a sword fern which has been going back rapidly. Will you kindly tell me what the trouble is, and suggest a remedy?—W. J. Bruce, Kincardine, Ont.

The piece of fern frond received was infested with a species of scale. The easiest method of getting rid of these pests on indoor plants is by mechanical means, that is, rubbing off by means of the fingers or an old tooth brush. They are easily dislodged. If a brush is used, it is better to dip it in a weak solution of whale oil soap, if available, or even common soap suds. When the piece of fern was received it was noticed that the young scales were moving. It is at this stage that they are most effectively treated by means of syringing, spraying or dipping, but this is not necessary if each frond is gone over separately with the brush.

Strawberries as Fillers

I am interested in a plan for not losing all the benefit from ground for the first year while waiting for strawberries to come to bearing, if such can be done successfully and not be a detriment to the crop of berries. I want to grow them among young grapes and peaches until the latter reach good bearing. What element of plant food is taken from the soil by strawberries that should be returned each year, and what is the best way to supply it?—J. E. Lent, Fonthill, Ont.

Strawberries can be grown quite successfully in a peach orchard or between rows of grapes, if other conditions are satisfactory. It is probable, however, that they will not do so well in the vine-

yard as in the peach orchard, owing to the usual difference in character of soil. Most varieties of strawberries do not produce best results on clay land. While the fertilizers that should be applied to a strawberry patch should contain the three essential elements, nitrogen, phosphoric acid and potash, the latter is required in larger quantities proportionately. It can be supplied in hardwood ashes or by the application of muriate of potash. It would not be well to continue growing strawberries among grapes or peach trees when the latter commence to bear.

Wistarias Do Not Bloom

Kindly tell me why wistarias often will not bloom, even after being planted several years? The vines are strong but no flowers appear. Do the flowers come on the current year's growth or on the growth of the preceding year?—C. E. Van Dyke, Grimsby, Ont.

It is quite a common occurrence for plants of wistaria to be shy in flowering the first few years after being planted. I planted a wistaria in 1883 which flowered very little for eight or ten years. The wistaria flowers on short spurs formed the previous season on wood of older growth. It will also flower sparingly on the long trailing canes or growth of the preceding year. Pruning the young canes of the last season's growth back in March, leaving spurs a few inches in length at base, will help in producing flowers. If the plants mentioned are pruned as recommended, they should flower in a year or two at most.—Wm. Hunt, O.A.C., Guelph, Ont.

Azaleas did not Thrive

Some of the members of the Seaforth Horticultural Society clubbed together and got a dozen azaleas. They appeared in good shape but most of them shrivelled up and are dead. Probably we did not treat them rightly. Kindly give treatment, including how to treat them during the summer.—Wm. Hartry, Seaforth, Ont.

Judging by the general results I should say that the roots of your azaleas had become dry before they reached you, and that the azaleas were already dead or nearly dead when they were received. If the azaleas had been grown properly before you received them, as they probably had been, the flower buds were already formed so that all that was necessary for you to do was to keep the soil moist but not wet, to keep the plants in a moderately warm temperature, and to give them light.

If they had bloomed as they should, they should, after blooming, have been kept growing by keeping the plants watered and giving them as much light as possible. In the spring the pots should be buried in a partly shaded place and the soil kept moist, but not wet, by regular watering during the summer. The plants naturally begin to grow immediately after blooming, and it is important to have as healthy foliage as possible, for, unless there is good foliage made, there will not likely be many flower buds formed.—W. T. Macoun, C.E.F., Ottawa.

Bordeaux for Stored Apples

Horticultural Editor, THE CANADIAN HORTICULTURIST: I have been trying an interesting experiment for checking rot in apples that are being kept in storage. I have dipped them in Bordeaux mixture, and would like to know if this has been tried by others. I am of the opinion that apples can be kept longer, and are less subject to rot when dipped in Bordeaux.

I had been treating a young plum orchard with Bordeaux to check plum rot. Although bearing well, this orchard had all its fruit rotted on the trees every year until it was sprayed. It occurred to me that if this mixture would kill the fungus on the plum, it might also do the same with the apple. Accordingly, I gathered a small box of windfalls a year ago last fall, most of them Colverts, and treated them with Bordeaux mixture. The majority of them remained in excellent condition until the following spring. Last fall, I repeated the experiment with several kinds, and so far the results are good.

As there is only a small quantity of blue stone in the mixture, I do not think that any danger would arise from eating the apples. For those who are timid, however, I would suggest that they peel the apples first. Then the fruit will be as good as if newly pulled from the tree.—Wm. Welsh, Kincardine, Ont.

Vegetable growers should use only the best strains of the best varieties of seed for planting.

The soil for strawberries should be rich and as free from weed seeds as possible. Wood ashes and bone dust are about as good fertilizers as any.

The Canadian Horticulturist

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January 1907.....	4,947
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EDITORIAL

MODERN PARK SYSTEMS

Canadians should realize more fully than they do the enormous benefits that accrue from the improvements that a modern park system brings about. There is a universal recognition of the physical, moral and social helpfulness which outdoor beauty confers, but the financial investment that improvements bring about through the increase in desirability and value of nearby land is not so well appointed. It is this increase in the value of adjacent land that makes an up-to-date park system such a valuable asset to any city.

The work is not wholly debt-creating as many people suppose, but on the contrary, it invariably proves an investment that pays for the cost of all improvements. Upon the intelligent selection of ground, however, mainly depends the success of the undertaking. By an intelligent selection, the cost of development is decreased and the proper areas are left untouched and adjacent, so that the enhancement of their values may be worthy speculation for the community. Mr. C. Ernest Woolverton, landscape designer, Grimsby, Ont., who spent last fall and winter in Boston, Mass.,

There is no reason why Canadian cities should not use their apparent waste ground to like advantage, and instead of using such places for dumping grounds and unsightly billboards, convert them into parks and parkways. The result would be that the land adjoining would be quickly bought for residential and building purposes and this would more than pay for the costs of the improvements.

SHOULD BE MORE STRINGENT

It was announced recently in The House of Commons, that probably the Fruit Marks Act would be made more stringent. This announcement should be welcomed by all honest fruit growers and shippers. The innumerable reports from Great Britain during the past winter respecting false marking and packing indicate most forcibly that prompt official action is necessary.

Concerned in our export apple trade, there are many packers and shippers who operate on such a large scale that the fines at present imposed are not sufficiently large to cause them a moment's uneasiness. They seem to count upon a certain amount to be paid in penalties each year and continue their fraudulent practices without fear. They know that only a small percentage of their output can come under the observation of the inspectors and feel that the risk is little and take it.

A law that merely permits the imposing of small fines is a law that lacks means of proper enforcement. If it is not capable of reaching offenders, and experience has proven that it is not, the necessary amendments should be made at once. A period in prison after two or three offenses would aid in solving the difficulty.

The Cooperative Fruit Growers of Ontario which was organized about two years ago has been of much value to the local associations that have become affiliated with it. Included in its work, have been weekly reports on fruit crop conditions and prices in all parts of the province and elsewhere, the keeping of the associations in touch with each other and with buyers, the compiling of information respecting the co-operative movement in general, and so forth. This season the central organization is endeavoring to aid the local associations in the matter of purchasing the best grade of supplies for spraying and other operations at the lowest possible prices. To do this effectively, however, the association should be incorporated. It would then be in a position to increase its value to the local associations many fold.

Many British Columbia fruit growers want eastern stock. Why should the government prevent them getting it, and getting it in good condition? Eastern stock can be shipped to the coast in good condition, if 'twere not for the double-fumigation and the abuse in handling that it receives. No other province in Canada puts such restrictions upon the importation of nursery stock, and they plant annually hundreds of thousands of trees from outside sources. The government of British Columbia should see that its own interests and that of its people would best be served by amending its inspection law in such a way as to give the fruit growers of that province and outside nursery firms a fair chance.

We are receiving some inquiries this week from fruit growers regarding our harrow and are pleased to advise you that these are traceable to The Canadian Horticulturist.—T. E. Bissell, Elora, Ont.

NOTE CHANGE OF ADDRESS

Exchanges, Agricultural Experiment Stations, Agricultural Colleges, Boards of Agriculture and Horticulture, and so forth, are requested to change the address of The Canadian Horticulturist on their mailing lists from Toronto to Peterboro, Ontario.

studying and practicing landscape architecture, writes The Canadian Horticulturist on this subject, as follows:

"One of the most admirable features of 'the American park system is in the intelligent selection of ground, and the knowledge of just how much to take. It is notable that the American park systems have been built on land that originally seemed worthless for ordinary use, that was either too steep or otherwise unsuitable for cultivation or building but had aesthetic value. It has been made accessible and developed for its beauty and the benefit to the adjoining land has paid the cost. This is especially applicable to 'parkway routes.

"There is, for instance, the low marshy ground that has been selected in the city of Boston. The Fens were once a tract of back water swamp with here and there rich clumps of willows and other tree growth breaking the dismal monotony. To-day the Fens contain the fashionable drives and promenades and is bordered by some of the most highly taxable property in the city. Great public, educational, religious institutions and mansions are securing sites adjacent, borrowing its beauty for a setting and enjoying the proximity for the use and benefit of its members. This sort of foresight on the part of the landscape architect working with the park board characterizes the American planning."

Niagara Fruit Growers Held Interesting Meetings

THE Niagara Peninsula Fruit Growers' Association held meetings at Grimsby and St. Catharines early in March. A number of practical and able addresses were delivered by Mr. J. H. Hale of South Glastonbury, Conn., Mr. W. G. Farnsworth, Waterville, Ohio, Mr. W. T. Macoun, Ottawa, Prof. H. L. Hutt, Guelph, and others. The sessions were presided over by the president, Mr. W. H. Bunting, St. Catharines. In a few opening remarks, he congratulated the growers on being united as a body from Hamilton to the Niagara River. By united effort, the association would be in a position to deal with questions that are beyond the power of the individual. Mr. Bunting referred to the rapid strides that fruit growing is making and pointed out the fact that while much progress already has been made, the industry now is entering upon a new era of prosperity.

PEACH CULTURE

Mr. Hale gave the benefit of his long experience in the production and marketing of peaches. Mr. Hale owns and operates large orchards in Connecticut and Georgia and is known as the "Peach King" of the United States. He said that an essential factor in peach culture is early cultivation and it should be kept up until the bending boughs prevent further work. The ground should then be covered with a cover crop but grass and weeds are better than nothing. "Peach trees should be headed low," said Mr. Hale. "When planted, they should be cut back so within 10 or 12 inches of the ground. Much labor is saved by this method. Work in the orchard necessitates going over the trees once or twice for pruning, twice for spraying, once or twice for thinning and two or three times for harvesting. This time and labor is lessened greatly by having the tree low. It is just as easy, if you know how, to cultivate low-headed trees as high-headed ones. Furthermore, it is not so necessary to cultivate as closely to a low-headed tree as to one that is headed high because the tree itself shades the ground and prevents loss of moisture and the growth of weeds near the trunks." Mr. Hale starts his trees with a plain stick a foot long. When branches start, the lower ones are rubbed off. Each spring afterwards, the branches are thinned and the outer ones headed-in. Mr. Hale advised summer pruning on trees that are less than three years old and that are growing strong and vigorously. This should be done late in June or the first part of July and it will throw the trees into fruiting.

Thinning the fruit on the trees was strongly advocated. The fruit should be left not closer than six inches apart. More bulk and better peaches will be secured. The season for Elbertas can be extended 10 days or so by thinning. Mr. Hale recommended orchardists, who grow Elbertas extensively, to divide their orchards into three parts and to thin one lot to eight inches apart, another to six inches and to leave the balance unthinned.

Peaches should be left on the trees until well grown and matured before harvesting. A full developed peach will carry as well as a green one and be worth much more. All the peaches on a tree should not be picked at once. The tree should be gone over three or four times to secure the fruit at the proper stage for shipment. Handle the peaches tenderly. Have the baskets smooth on the inside and not too large. Use spring wagons. Employ women for grading and packing as they can

be depended upon more than men. Have every package the same from top to bottom. In the words of Mr. Hale, "Have the peaches right and make the people pay for it."

Mr. Hale plants his permanent trees 20 feet apart. Between these rows are planted early bearing peaches and these are left until two crops are taken from them; they are then removed. In regard to peach yellows, Mr. Hale advised pulling the tree the moment the disease is discovered as there is no other remedy. As a fertilizer for peaches, Mr. Hale uses 1,200 to 1,500 pounds of raw ground bone and 400 to 600 of muriate of potash per acre, with cover crops in addition. On parts of the orchard that need it, nitrate of soda is applied during the growing season.

White peaches are favored by Mr. Hale as they are better flavored than yellow ones and bring more money in his markets. If the Canadian market does not want white peaches, the consumers should be educated to appreciate them. Among the best of the white peaches is the Belle of Georgia. It is very productive and a good shipper and has been found hardy in the north.

"White peaches will not sell in this country," said Mr. E. D. Smith of Winona. "The growers must plant the kinds that the people want. The demand may change, but just now, the eye governs the taste. Yellow peaches are wanted, both for using in the fresh state and for canning. In my jam factory, I have 43 cases of white peaches still on hand from last season and have sold over 11,000 cases of yellow ones." Mr. Hale advised the association to advertise the value of white peaches so as to make consumers acquainted with them. Among the varieties recommended by Mr. Smith were Yellow St. John, Fitzgerald, Smock, Longhurst and Crosby. The two latter will give a crop every year, and if thinned regularly to five inches apart, they will yield fruit of good size.

SPRAYING FOR SCALE

Spraying for San Jose Scale was a live question at all the meetings. Mr. Farnsworth referred to what is being done in Ohio. He said that thousands of trees in that state have been ruined by the use of crude petroleum. The best material for combatting scale is the lime-sulphur wash. This mixture not only kills the scale, but it also destroys all fungi on the trees, which, in itself will pay for the expense of application. Best results have been secured by not using salt in the mixture, as was first advised.

When speaking of the seriousness of the pest, Mr. Farnsworth pointed out that scale produces three or four broods in a season, 300 to 500 insects in a brood. A little calculation will show the immense increase in numbers that occurs in a very short time.

The tank used for boiling by Mr. Farnsworth is elevated eight feet. A working pressure of about 100 pounds is used when spraying. Spraying should be practiced every year thoroughly whether scale is present or not. The mixture invigorates the tree. Mr. Farnsworth stated his opinion to be that only lime and sulphur can be used with safety on peach trees. Boiling should be done properly. When boiled to the green stage the mixture is injured. The coffee color is proper.

Mr. Hale said that while oils are valuable for killing scale, the lime-sulphur wash is the better for all purposes. It acts both as a fungicide and as an insecticide. He

has had best results by using oil one year, and lime-sulphur the next. In some experiments conducted by Mr. Hale with home made miscible oils excellent results have been secured at comparatively small cost. While the San Jose scale is troublesome, it is a blessing in the opinion of Mr. Hale. It makes growers look after their orchards and it will put the careless men out of the business. A further report of the discussion on San Jose scale will appear in our next issue.

BETTER FRUITS

At one of the sessions, Prof. H. L. Hutt spoke on better fruits. He said that the money in fruit growing is made out of A1 fruits. Too much inferior fruit is produced. There is plenty of room for a high grade product. British Columbia is catering to a fancy market and puts up only the best. To have money-making fruits, we must have varieties that are adapted to the localities, productive and with shipping qualities. Professor Hutt said growers should not spoil the market for good fruit by growing poor varieties early in the season, as, for example, the Champion grape. Orchard and vineyard management must be of the best. There must be good drainage, cultivation, fertilization of the soil, pruning, thinning of fruit, spraying and so forth. The professor referred to the value of propagating from bearing trees instead of from young trees, which induces wood growth at the expense of fruitfulness.

BEST STRAINS ARE REQUIRED

This question of individuality in trees and of propagating from the best was dealt with at greater length by Mr. Macoun. "The time is come," said he, "when growers and nurserymen must give more attention to the best strains of the best varieties of fruits. Each bud has an individuality of its own. As an example of this, we have the well-known fact that there are many different strains of the Fameuse apple. This variety has been propagated so long that its varying strains have been developed and increased. Only the best strains of this or any other variety should be propagated from."

At the Central Experimental Farm, over 4,000 tree fruits have been tested. In the case of the McIntosh Red, the largest yielding tree gave 485 gallons in a 10-year test and the least productive, 197. The differences in these trees is nearly two and one-half times, which means about \$96 an acre in one year. The heaviest yielding McMahon White gave in eight years, 611 gallons and the smallest, 163, a difference of \$74.46 an acre in a year. Many other instances were cited by Mr. Macoun who advised our nurserymen, growers and experiment stations to unite together on this matter and to do something.

Many other subjects were dealt with and discussed at the convention. Mr. Farnsworth discussed care of soils, the strawberry and other topics. Mr. Hale discussed, among other things; the business end of peach growing. Reports of these discussions will be published in a later issue. The convention closed with a banquet tendered to the speakers and visitors.

Wm. Cooper & Nephews, of Toronto, have appointed Mr. Robt. Thompson, of St. Catharines, sole agent for V1 and V2 Fluids, for the St. Catharines district, and Messrs. E. G. Prior & Co., of Victoria, Vancouver, Nelson and Kamloops, sole agents for V1 and V2 Fluids for British Columbia.

Nova Scotia

Eunice Watts, Waterville.

Several institute meetings were held in King's County during the month of February, in which apple culture has been a prominent subject. The Nova Scotia Farmers' Association held meetings at Cambridge, Harmony, Welton's Corner, Gasperreau, Sheffield Mills, Upper Pereaux, Berwick, Aylesford, South Berwick and Waterville. These meetings were addressed by Mr. W. H. Woodworth, an authority on spraying, and Mr. L. D. Robinson, a successful fruit grower, with the aid of government men sent from Truro.

The chief meetings were held at Berwick, on February 27, at the Seed Fair and Fruit Exhibition. The apples shown excited much admiration being splendid specimens, highly colored. A new law was introduced which excluded all exhibits from prizes which were not grown by the exhibitor. Unprincipled persons were thus prevented from buying fruits, or selecting them in the warehouses, a practice which has discouraged would-be competitors.

During the judging of the fruits and seeds, addresses were given to a crowded audience. Mr. Woodworth advised growers to use arsenate of soda, which is just as effective, safer and cheaper than Paris green. He makes his stock solution from two pounds of white arsenic and eight pounds of sal-soda boiled in two gallons of water. He claimed that one gallon of this mixture was equal to one pound of Paris green. Mr. S. B. Chute gave his experience in spraying with arsenate of lead which also he claimed is superior to Paris green as it will not wash off, or burn the foliage.

Much indignation was expressed at the

growing habit of spraying when trees are in blossom. The bees are not only killed, but the tender organisms of the flower are injured by the Bordeaux mixture.

Much interest was taken in the silver and bronze Banksian medals which were awarded to W. H. Woodworth, A. L. Morse, and F. A. Parker by the English Royal Horticultural Society at the Crystal Palace for apples.

Returns for Nova Scotia apples have lately been very disappointing owing to the glut of oranges, grapes and other fruits in the English markets. The apples in the warehouses are turning brown, probably owing to the mild damp winter. We are having samples of most kinds of weather, and unprotected strawberry beds will suffer under the alternate frosts and thaws.

Okanagan Valley

R. D. Riggs, Vernon, B.C.

Orchard cultivation is a very important subject, differing greatly in various sections of the country. It has been the practice in the Okanagan Valley to cultivate the orchard land continuously and during the dry season to keep the surface soil in a state of tilth, thus conserving the moisture beneath. This result is best gained by the use of the acme harrow. But constant cultivation and cropping of fruit has impoverished the soil to such an extent that the fruit is not now so highly colored as it should be. In some neglected and poorly-kept orchards last season, where weeds and grasses were allowed to grow, the apples were every highly colored and of a superior quality.

Some growers have already tried red clover for providing a sod for the orchard

and adding humus to the soil. The clover is cut and left on the ground as a mulch, it being unwise to take two crops, that is, a crop of clover, and a crop of fruit, off the land in one season. The grower must use his judgment as to the length of time the clover is left without being plowed under, which time depends considerably on the amount of rainfall and of water available by irrigation. Where there is insufficient moisture, some other method might be more suitable. Many growers intend seeding down their orchards this spring but due consideration must be given to the available moisture and the condition of the soil if the best result is to be obtained.

New Brunswick

J. C. Gilman, Fredericton.

The past winter will test the hardy qualities of strawberry plants, as the fields have been nearly bare, with frequent thaws, the most of the time. Some beds of ice, covering much of the surface, must seriously injure the roots of all young plants. Fruit buds seem to have wintered, so far, very well, and if no unfavorable conditions set in later, we may hope for a good show of bloom on fruit trees this spring.

The egg clusters of the forest tent caterpillar are very numerous on woodland growth, one branch of poplar, four feet long, having by count over 20 rings of eggs, some of which were brought into the kitchen of a farmhouse, and hatched in 16 days, by placing the twigs in a jar of water. With the prospect of such myriads of leaf eating enemies, the woodlands and orchards will be watched with much interest and some anxiety till the feeding season of caterpillars is past.

Hardy Herbaceous Plants for the Flower Borders

WE have selected a varied collection of Herbaceous Plants with a view of making an Effective Ornamental Border. Our plants are all hardy, bearing bright conspicuous flowers, and will yield a constant succession of bloom for Decorative Purposes. Where any particular effect is desired either as to their height or their arrangement in combination as to density, etc., it would be well to mention these features when sending enquiries which will always be cheerfully answered.

Pæonies

Day Lilies

Leopard's Bane

Perennial Sunflowers

(Funkia)

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Monkshood

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Red-Hot Pokers

Adam's Needle

(Aconitum)

(Rudbeckia)

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(Yucca)

Phlox, German and Japanese Iris, Dahlias, named and unnamed, etc., etc.

An extensive collection, carefully prepared, of the hardiest and choicest blooming field-grown Roses, some budded and some on their own roots

Our assortment of Apples, Plums, Pears, Peaches, Cherries, &c., &c. is well-known throughout the Dominion and Catalogues explaining varieties will be mailed free on application.

HELDERLEIGH
NURSERIES

E. D. SMITH

WINONA,
ONTARIO

Trees Wintered Well

While it is yet early to determine the exact condition of fruit buds and wood, the indications are that trees and bushes have come through the winter in good condition. For the next issue of The Canadian Horticulturist, brief reports are requested from growers in all parts of Canada.

GRENVILLE COUNTY

Maitland.—Fruit buds and wood on apple trees are in excellent condition. With favorable weather from now on, we should have a perfect bloom, as the trees went into winter with well ripened and fully matured buds.—Harold Jones.

HASTINGS COUNTY

Belleville.—Apple trees wintered well, and from the appearance of the buds, prospects for a large crop of apples this fall are good.—F. S. Wallbridge.

HALTON COUNTY

Burlington.—The wood of trees and vines went into winter fairly well ripened and therefore in good condition to stand the cold. Owing to unusual snow falls, the frost did not penetrate the ground to any depth, so that with the exception of the more tender varieties of fruits, the buds of which might possibly have been impaired by the very low temperature of January, all should yield well.—A. W. Peart.

LINCOLN COUNTY

Grimsby.—Indications point to a very abundant fruit harvest. Peach buds have come through in excellent condition and there should be a bumper crop. Apples will be abundant; also, probably, pears and plums. In many orchards, the mummied fruits from last season's rot have been allowed to remain and will propagate the disease.—L. Woolverton.

Jordan Station.—Judging from present indications, peaches have come through the winter in good shape and promise a full crop. Strawberries are looking well, but the trying time is yet to come. Raspberries and blackberries appear to have suffered very little from the effects of the winter. It is difficult to find any variety of fruit that does not promise a good crop this season.—C. M. Honsberger.

WELLAND COUNTY

St. Catharines.—Strawberries are looking fresh and green. The woodgrowth on raspberries is small but they are in good condition. Peaches promise well and there are few buds injured. The cane growth of grapes is rather weak but not much frozen. Plums are full of buds. On the whole, all fruit has wintered well so far.—Robt. Thompson.

NORFOLK COUNTY

Simcoe.—Trees are looking well, but it is too early to ascertain what next season's crop will be.—Jas. E. Johnson.

KENT COUNTY

Chatham.—From present appearances, buds are all right and plentiful and I think no damage has been done by the winter. We have had a good snowfall this season which ought to assist materially. Prospects for a heavy crop are good.—W. D. A. Ross.

The Popular Piano Player.—The player piano has stirred up any amount of enthusiasm in musical circles, if the many sales being made by Heintzman & Co., Limited, 115-117 King street west, Toronto are to be taken as a criterion. This firm have a very wide selection of player-pianos at terms of payment to suit almost any purchaser.

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Pyrethrums
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Aquilegias
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all in choicest variety

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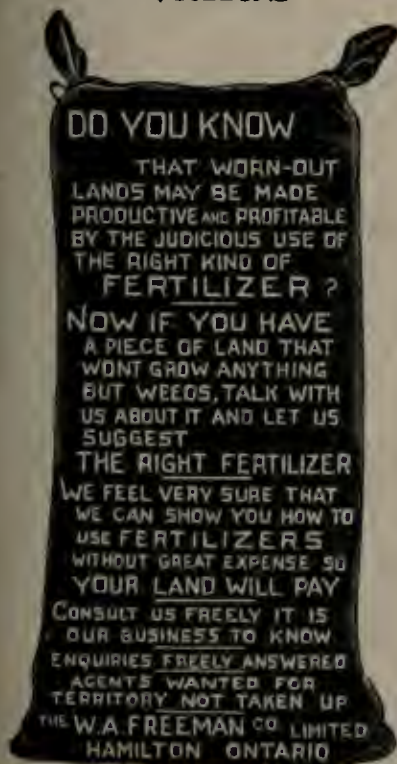
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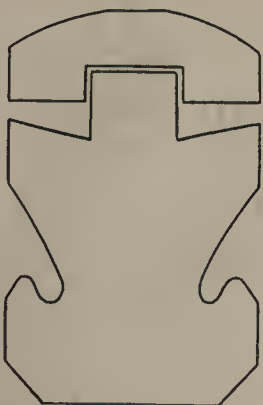
The Williams Strawberry

This celebrated Strawberry still maintains its lead in the Niagara District as the best all round commercial berry. In size, vigor, productiveness and the qualities that go to make up a first class shipper, it stands at the head of the list of proved varieties, and is now more largely grown than any other strawberry in this section. We can supply a limited quantity of first-class plants at lowest rates.

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Mention the Canadian Horticulturist when writing.

Western Horticulture

The annual convention of The Western Horticultural Society was held recently at the Manitoba Agricultural College, Winnipeg. There was a fair attendance and much interest was taken in the papers and discussions. The following officers were

FOR SALE AND WANT ADVERTISEMENTS

Advertisements under this heading inserted at rate of two cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 25 cents, strictly cash in advance.

MR. CHARLES ERNEST WOOLVERTON, Grimsby, Ontario, landscape architect, parks, cemeteries, pleasure, school and home grounds laid out, surveys made. Working drawings to a scale so that any gardener can work them out. Terms very reasonable.

A MILLION STRAWBERRY PLANTS for sale, not bought from dealers, but grown on my own farm last year. Fifty-five varieties. New Highland, Three W's, Victor, Wonder, Thompson's No. 2, President, Morningstar, Abington, Almo, Governor Rollins, and others, and all the leading old varieties. If you want plants this year that will please you when they arrive, and please you better still when they fruit, order Downham's. They have pleased others and will please you. It will pay you to get my free catalogue before you buy, ready to mail now. Raspberry and Blackberry plants, and Seed Potatoes. John Downham, Strathroy, Ont.

FRUIT GROWERS! Drain your land and double your income. This may seem exaggerated but it's a fact. Use Doyle's tile. Estimates given. R. J. Doyle, Owen Sound.

SEND YOUR ADDRESS for list of strawberry plants, also red and black raspberry plants and seed potatoes. R. C. Cryslar, St. George, Ont.

FOR SALE—Six No. 8 Gurney Hot Water Boilers in good condition, suitable for private house or greenhouse work. Apply Stevenson & Malcolm Co., Guelph, Ont.

GREENHOUSE FOR SALE—Length, 42 ft.; width, 18 ft.; hinged double glass windows on each side, 5 top ventilators with floor stand and gear, equipped with a No. 3 Daisy boiler, and 6 run of 4-inch pipe on each side. Apply Box G, Canadian Horticulturist.

A FIRST-CLASS MARKET GARDEN for sale, sale, with no opposition. Two large greenhouses, large dwelling house, stable buildings, all new. Implements all up-to-date, good team of horses, new rigs, twelve acres of land. Can be bought for cost. Easy terms. Apply at once.—J. A. Brillinger, Box 377, New Liskeard.

BROTHER, ACCIDENTALLY have discovered root that will cure both tobacco habit and indigestion. Glad to send particulars. C. Stokes, Box 100, Mohawk, Florida.

CANNAS, DAHLIAS AND GLADIOLI. choicest varieties, true to name. Write for list. William Colvin, Galt, Ont.

FRUIT OR VEGETABLE GROWERS requiring help for the spring season should write H. O. Ellis, 181 Bellefair Ave., Toronto. No charge made.

TOMATO SEED, HILLSIDE COMET...A very early variety, good inside or out, good croppers, size, shape and color, selected and grown in Canada. Packets 25 cents, 1/4-oz. \$1.00, cash with order. Frank Gilbert, Orillia, Ont.

elected for the ensuing year: Hon. presidents, Angus Mackay, Indian Head, Sask., W. J. Black, Winnipeg, Jas. Murray, Brandon; pres., A. P. Stevenson, Nelson, Man.; 1st vice-president, Jas. Caldwell, Virden; 2nd vice-president, D. W. Buchanan, St. Charles, Man.; sec-treas., F. W. Brodrick, Agricultural College, Winnipeg; representatives to Winnipeg Fair Board, A. P. Stevenson, Nelson; directors, Messrs. Robt. Aitken, Louise Bridge, Man., Dr. H. M. Speechly, Pilot Mound, Man., Dr. S. J. Thompson, St. James, Man., S. A. Bedford, Brandon, Man., Rev. Dr. Baird, G. H. Greig, J. D. Duthie, Geo. Batho and Wm. G. Scott, all of Winnipeg.

Secretary Brodrick showed in his report a membership of 137 during the past year, with the finances of the society in a healthy condition. A report was read from Mr. J. A. Killough, Moosejaw, Sask., whose remarks were optimistic over the future of horticulture in the West. An excellent address on "Good Taste in Gardening" was delivered by Dr. H. M. Speechly, of Pilot Mound, Man. Extracts from this address are published in another column of this issue. Valuable papers were read also by Mr. J. J. Ring of Crystal City of "Wind-breaks and Shelter Belts"; by Mr. D. W.

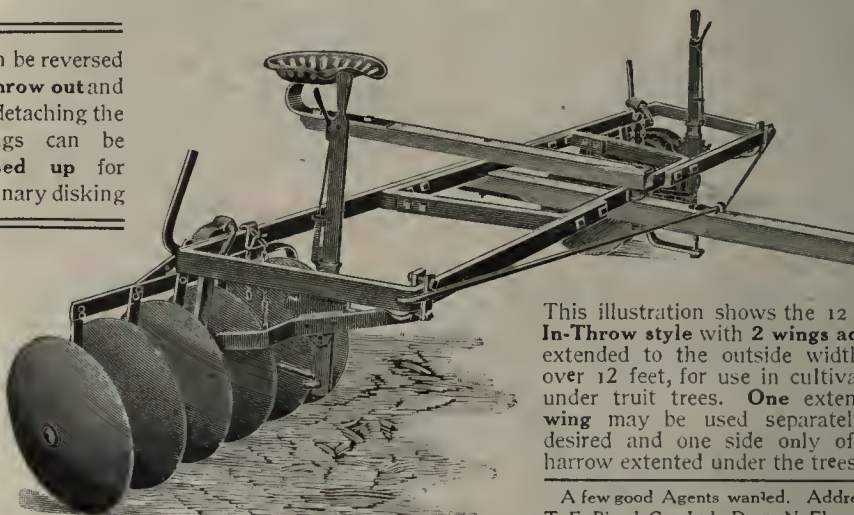
Buchanan of St. Charles on "Manitoba Horticulture"; by Mr. Norman M. Ross of the Indian Head Forestry Farm on "Hardy Conifers for Western Planting"; by Mr. A. P. Stevenson, of Nelson, Man. on "Propagation of the Apple"; and by Mr. Jno. Caldwell of Virden on "Forestry." We hope to publish these papers in part or in full, in later issues. Mr. Brodrick gave an interesting demonstration in judging garden vegetables.

A friend lent me a copy of The Canadian Horticulturist, and I am so well pleased with it I would not like to be without it any longer. It will be a great help to me in making a garden. Enclosed is my subscription.—Mrs. R. W. Hyndman, Port Arthur, New Ontario.

Giving Organs Away.—This heading is misleading if you like, only to the extent that when Heintzman & Co., Limited, 115-117 King street west, Toronto, announce that they are selling organs at \$10, \$15 and \$20 each, in payments of 50 cents a week, it is next door to giving the organs away. One can hardly expect that such bargains will last very long. Wise ones will see about the matter at once.

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Can be reversed
to throw out and
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This illustration shows the 12 x 16 In-Throw style with 2 wings added extended to the outside width of over 12 feet, for use in cultivating under fruit trees. One extension wing may be used separately if desired and one side only of the harrow extended under the trees.

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THIS is the HAND SPRAMOTOR No. 1 or No. 2 mounted on a No. 2 Wheel Cart. Has 52 inch. wood wheel with iron hub, cold rolled steel axle, hardwood frame, for one horse. Adjustable all-brass 4 row Sprayer for one nozzle to a row from 26 inch. to 36 inch. Fitted with our Patent Parallel Nozzle Controller, holding nozzles in correct position when raised or lowered, with rack and pinions all fitted for vineyard, and mustard, and orchards, and all kinds of hand work. Fully guaranteed. Prices from \$44.00 to \$50.00.

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Add 16 gallons water to 1 Scalecide and it's ready to use. Absolutely permanent percentage maintained, saves time enough to pay for the material Guaranteed. It's cheap, effective, easy to use, non-corrosive, non-clogging, and contains more oil and less water than any other commercial spray. In 1-5-10 gallon cans, 25 and 50 gallon barrels. Free booklet. B. G. PRATT CO., Mrs. New York.

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RENNIE'S XXX VEGETABLE SEEDS



RENNIE'S XXX MELTING MARROW PEAS

Rennie's XXX Bush Green Pod Bean

First in Spring; last in Fall. Always solid, meaty and tender; entirely stringless. Plants thrifty, hardy, early and prolific; bears continuously for several weeks. Pods thick, broad, extra long and quite uniform in shape.

Rennie's XXX Bush Butter Bean

The finest cylinder podded dwarf wax bean. Fine healthy plants, bushy and robust, free from rust or mildew and extremely prolific. Pods six inches long; solid, meaty and tender, snapping brittle and unsurpassed for flavor.

For thirty-eight years we have tested every known variety of Vegetable Seeds on our extensive trial grounds; and a careful analysis of these tests has proved conclusively that the varieties now offered as **RENNIE'S XXX VEGETABLE SEEDS** are positively the finest possible to procure. Don't waste money experimenting, plant Rennie's XXX and be SURE of profitable results.

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Closely follows the extra early sorts, filling in the gap between these and the midsummer varieties. Massive pods; robust plants, half dwarf, practically self supporting. Superb, rich, buttery flavor.

RENNIE'S XXX SOLID HEAD LETTUCE

Immense solid heads, 15 to 16 inches across. Crisp and tender. Perfectly blanched heart. A robust growing, deep rooting, heat resisting and sure heading type. Outer color, pleasing apple green.

RENNIE'S XXX SCARLET ROUND WHITE TIPPED RADISH

The best for outdoor cultivation. Mild, crisp, white flesh; excellent flavor, never strong or rank. Attractive appearance; bright scarlet with distinct white tip which makes a vivid contrast.



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We will present a packet of either the New **ADMIRAL POPPY**; The new orchid flowered sweet pea, **COUNTLESS SPENCER**; or Luther Burbank's "Never Fading" Flower, **AUSTRALIAN STAR FLOWER** (*Cephalopterum Drummondii*), on condition that the coupon printed on bottom right hand corner of this advertisement is attached to an order for Rennie's XXX Seeds.



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Mention the Canadian Horticulturist when writing.

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Rennie's XXX Bush Green Pod Beans, pkt. 10c, lb. 30c., postpaid; peck, \$2.50, 5 lbs. \$1.00, lb. 25c., by express, at buyers expense.
Rennie's XXX Bush Butter Bean, pkt. 10c, lb. 40c, postpaid; peck \$3.75, 5 lbs. \$1.50, lb. 35c, by express, at buyers expense.
Rennie's XXX Globe Beet, pkt. 10c, oz. 20c, 1 lb. 35c, 1 lb. \$1.00.
Rennie's XXX Early Summer Cabbage, pkt. 10c, oz. 30c, 1 lb. 90c, lb. \$3.00.
Rennie's XXX Autumn-Winter Drum-head Cabbage, pkt. 10c, oz. 30c, 1 lb. 90c, lb. \$2.75.
Rennie's XXX Golden Self Blanching Celery, pkt. 10c, oz. 70c, 1 lb. \$2.00, lb. \$6.50.
Rennie's XXX Table Carrot, pkt. 10c.
Rennie's XXX Snowball Cauliflower, pkt. 25c, 1 oz. \$1.10, 1/2 oz. \$2, oz. \$3.50, 1 lb. \$12.
Rennie's XXX Table Cucumber, pkt. 10c, oz. 25c, 1 lb. 60c, lb. \$1.90.
Rennie's XXX Early Sweet Table Corn, pkt. 10c, lb. 40c, postpaid; 10 lbs. \$2.50, 5 lbs. \$1.50, lb. 35c, by express, at buyers expense.
Rennie's XXX Solid Head Lettuce, pkt. 10c, oz. 25c, 1 lb. 60c, lb. \$2.00.
Rennie's XXX Golden Green Flesh Mink Melon, pkt. 10c, oz. 35c, 1 lb. 90c, lb. \$3.
Rennie's XXX Connecticut Yellow Globe Onion, pkt. 10c, oz. 35c, 1 lb. \$1.00, lb. \$3.50.
Rennie's XXX Connecticut Large Red Onion, pkt. 10c, oz. 35c, 1 lb. \$1.00, lb. \$3.50.
Rennie's XXX Earliest Sweet Table Water Melon, pkt. 10c, oz. 20c, 1 lb. 60c, lb. \$1.90.
Rennie's XXX Evergreen Curled Table Parsley, pkt. 10c, oz. 20c, 1 lb. 50c, lb. \$1.50.
Rennie's XXX Melting Marrow Peas, pkt. 10c, lb. 40c postpaid; lb. 35c, 5 lbs. \$1.50, peck \$3.75, by express at buyers expense.
Rennie's XXX Guernsey Parsnip, pkt. 10c, oz. 20c, 1 lb. 40c, lb. \$1.00.
Rennie's XXX Earliest Table Marrow Peas, pkt. 10c, lb. 40c, postpaid, lb. 35c, 5 lbs. \$1.50, pk. \$3.75, by express at buyers expense.
Rennie's XXX Scarlet Round White Tipped Radish, pkt. 10c, oz. 20c, 1/2 lb. 50c, lb. \$1.50.
Rennie's XXX Autumn-Winter Green Hubbard Squash, pkt. 10c, oz. 20c, 1 lb. 50c, lb. \$1.50.
Rennie's XXX Scarlet Oval Radish, pkt. 10c, oz. 20c, 1 lb. 50c, lb. \$1.50.
Rennie's XXX Pink Skin Tomato, pkt. 15c, 1/2 oz. 35c, oz. 60c, 1 lb. \$2.00.
Rennie's XXX Earliest Round Scarlet Skin Tomato, pkt. 15c, 1/2 oz. 35c, oz. 60c, 1 lb. \$2.00.



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Admiral Poppy,
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READY TO PLANT

10 and 20 acre lots within 4 miles of the city of Kelowna (pop. 1,200) in the famous Okanagan Valley. Our fruit lands are free from timber, rock and scrub—already plowed. A beautiful valley—a prosperous settlement. Main road runs round the property. The land will easily pay for itself the first year. Some results for 1907:

½ acre Strawberries ...\$ 626
1 acre Tomatoes 1,000
4 acres Onions, 75 tons.. 2,250
½ acre Crabapples yielded 10 tons.

PRICE \$200 PER ACRE.

TERMS, 1-4 CASH

Balance in three annual instalments. If interested, write for our Illustrated Booklet.

**Central Okanagan
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Ontario Fruit Growers.

At a meeting of the executive board of the Ontario Fruit Growers' Association held in Toronto on March 13, secretary Hodgetts read a letter from Prof. John Craig, of Cornell University, secretary of the American Pomological Society, accepting, on behalf of the association, the invitation to hold their annual meeting in St. Catharines in September, 1909, on a date to be subsequently elected. Secretary Hodgetts also reported that in accordance with the request of the association, Mr. W. T. Macoun, C. E. F., Ottawa, had been added to the advisory board for fruit station work.

The representatives to The Canadian National Exhibition reported that the prize list for fruit had been re-arranged so as to induce a larger and more representative exhibit of Canadian fruit. The list of varieties had been cut down to a certain extent and a new class added for pyramids of fruit. Further changes were also made with a view to improving the display of all classes.

It was decided by the board to issue a small circular at once, giving the methods of spraying as adopted by three or four of our most successful fruit growers.

Vegetable Experiments

The practical educational work carried on by the Ontario Agricultural College, through the Experimental Union, is now well known throughout Ontario. Thousands of people in both town and country interested in farming, fruitgrowing or gardening are carrying on experiments under the direction of the College and are profiting by the experience. The seeds or plants for these experiments and full instructions for conducting them are furnished free on the understanding that each experimenter will report the results of his experiment at the end of the season.

Owing to the great demand for the experiments with fruits and the limited funds for the purchase of plants for this purpose, the supply of these for this year is already exhausted. But we have on hand a good supply of seeds for the experiments with vegetables and hope to be able to furnish these to all interested in the growing of the best kind of garden vegetables.

Three of the leading varieties of each of the following kinds of vegetables are offered for testing this spring, viz., beets, carrots, onions, lettuce, early tomatoes and late tomatoes. The early tomatoes are best for northern sections where the later and better varieties cannot be depended upon to ripen.

Any person in Ontario who wishes to join in this co-operative testing may choose any one of the experiments above mentioned and send in his application for the seeds and instructions for conducting the same. These will be sent by mail free of charge, but each applicant must agree to follow the directions furnished, and report the results at the end of the season, whether successful or not. Applications will be filed in the order they are received until the supply of seeds is exhausted. Address all applications to H. L. Hutt, O. A. C., Guelph, Ont.

A Piano for \$25.00.—In every sense of the word the sale of somewhat used, but not badly used, square pianos at Heintzman & Co's, Limited, 115-117 King street west Toronto, is sensational. The announcement has brought this firm orders from almost every corner of the Dominion. The determination is to clear out every square piano in the place between now and stock-taking, and surely prices like \$25, \$30, \$35, and \$40, will do it—in payments of \$5 down and 50 cents a week.

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ASTERS—Bruce's Empire Collection, 6 separate distinct varieties, mixed colors, value 55c for 25c post paid

NASTURTIUMS—Bruce's Peerless Collection, Tall Sorts, 7 distinct separate colors, value 40c..... for 25c post paid

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SEND FOR IT

JOHN A. BRUCE & CO., HAMILTON, ONT.

Tomatoes in Pots

Continued from page 84

They are difficult to look after, but to get the best results in localities as far north as Toronto we must have good plants. The easiest way and best way to grow tomato plants is to dig up a spent hot-bed, say one that lettuce has been grown in, and plant in strawberry boxes. Give them as much room as you can afford. Place on the bed and fill with loose earth to level of boxes. They are easy to water and the roots will feed from the bed.

Work of Fruit Stations,

At a meeting of the new Advisory Board of Fruit Stations held in Toronto, on Feb. 26, it was decided that no changes be made in the old stations until a full report could be obtained as to their respective value.

At the new station at Jordan Harbor an extensive planting of all kinds of fruits will be commenced this spring with a view to experimenting along the following lines: 1. Semi-dwarf stocks for apples; 2. Testing of various stocks with standard varieties for northern districts; 3. High vs. low heading; 4. Use of varieties as fillers among standard winter sorts; 5. Culture tests with all fruits; 6. Method of training grapes; 7. Peaches on plum stocks; 8. Experiments with pears for the suppression of blight; 9. Standard vs. dwarf pears for commercial use; 10. Suppression of rot in plums; 11. Testing of hybrids originated at the Central Experimental Farm, Ottawa; 12. Pruning methods with all fruits, including small fruits; 13. Planting of selected seed of all fruits in large quantities for the purpose of obtaining natural hybrids of value; 14. Fall planting of peaches, pears and plums vs. spring planting; 15. Fumigation of nursery stock to test the theory that this process injures the trees.

It is likely that some special tobacco experiments will be carried on under the supervision of Mr. McKenney, the representative of the Department of Agriculture at Essex Centre. Extensive vegetable experiments will also be carried out at Leamington and Jordan Harbor.

To Revise Plant Names

The committee on the nomenclature of plants, which was appointed at the last annual meeting of the Ontario Horticultural Association, has begun its work. A meeting was held in the offices of THE CANADIAN HORTICULTURIST recently, at which it was planned to have some valuable information to present at the next annual meeting of the association. The members of the committee present were: W. Hunt, O.A.C., Guelph; J. Cavers, Oakville; W. T. Macoun, C.E.F., Ottawa, and H. B. Cowan, of Toronto.

The object of the appointment of this committee was to correct as many mistakes as possible in the names and descriptions of plants in common usage. The committee also hopes to present to the association at its next annual meeting, lists of the best varieties of some of the most popular kinds of plants, correctly named and described.

High-Class Upright Piano for \$225 00.—There have been taken into the warerooms of Heintzman & Co., Limited, 115-117 King street west, Toronto, within the past few days, two upright pianos, very little used, and bearing the names of well-known manufacturers. One of these may be bought for \$225, and the other for \$250. It is an opportunity to get what is practically a new piano at nearly half the manufacturer's regular price.

Orchard Cultivation

T. E. Bissell, Elora, Ont.

The advantages of cultivating orchards and vineyards with a disk harrow are coming to be more fully recognized. The disk principal is that of a revolving mould-board which enters the soil at an angle and lifts, turns and pulverizes, while the mould-board continues to revolve. Owing to the principal on which it works, the disk cultivator or harrow will accomplish more work and stir more earth with less horse power than any other style of cultivator. At the same time if the disk plate is of correct shape and turn, the soil is more thoroughly cultivated thereby than with any other style or implement.

The disk presents an advantage for orchard and vineyard work in that it does not catch on the rootlets and tear them up similar to the duck-foot or other cultivator of the tooth style. The frequent cultivation of orchards, vineyards and small fruits by the disk cultivator preserves the moisture and increases the vitality of the trees and vines ensuring better returns.

Enclosed find the money to pay for my advertisement. Judging from the way orders are coming in, I will not need any further advertising than that I have paid for; therefore, cancel my order for the next issue.—N. E. Mallory, Blenheim, Ont.

The Aspinwall Mfg. Co., Guelph, Ont., issue a neat little booklet entitled "Potato Culture," that contains valuable information for potato growers. Send for a copy, and also ask for a copy of their catalog of potato machinery.

Fruit growers are considerably interested in the new spraying mixtures that were mentioned in The Canadian Horticulturist, the V1 Fluid and V2 Fluid. At a recent meeting of the Niagara Peninsula Fruit Growers' Association, a committee, composed of A. H. Pettit, Grimsby; Jos. Tweddle, Fruitland, and J. W. Smith, Winona, was appointed to test these mixtures. Experiments will be conducted also in other parts of Ontario and in other provinces.

A Square Piano for \$30.00—Heintzman & Co., Limited, 115-117 King street west, Toronto, are clearing out what is pretty much one floor of square pianos at not only \$30 but some of them at \$25, and others again at \$35, \$40, and \$45, in payments of \$5 down and 50 cents a week.



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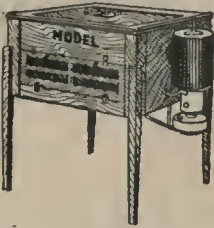
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POULTRY DEPT.

Conducted by S. Short, Ottawa

Eggs for Hatching

February and March issues of The Canadian Horticulturist contained articles on incubation by machine and artificial rearing of the chicks by brooders. It was thought seasonable to say something this month on how to obtain fertile eggs and when to get them. If eggs are purchased—and it is taken for granted that, if they are, they will be from high-grade stock and therefore expensive—on no account order them for immediate delivery. Wait until spring is sufficiently advanced, that to your certain knowledge, the fowl in the pen from which your eggs are to be supplied have been running outdoors for at least a fortnight, that is, if you wish to get a good hatch. It is the exception to get even a fair hatch from

eggs laid at the end of March and beginning of April.

There are several reasons advanced for this fact. The hens are run down from their long confinement and while the egg is fertile, that is, it contains a germ of life, the germ is too weak to live through the three weeks of incubation, and rotten eggs are usually the result. The lime and egg shell material supplied the fowls does not in many cases enable some of the hens to lay eggs with strong shells so that a great many breakages occur if the eggs are set under hens.

Whatever the reason, the fact remains that eggs as a rule do not hatch well until after the hens have been outdoors. For all practical purposes, chickens hatched from eggs set from the middle to the end of April are plenty early enough to furnish layers for the following winter, if the chicks are properly fed and housed.

Of course, if the breeder has breeding pens of his own and plenty of eggs he may be willing to lose a large percentage of the eggs to get a few very early chicks for exhibition at the fall fairs. If he is unsuccessful, the loss is his own. It is another matter where the beginner pays from \$2 to \$5 per setting and only gets one or



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guarantee. It tells all this and also of the way the Chatham Incubator works, how it has made money for others, how it can make money for you.

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To save time address my nearest office—do it now while you think of it.

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that the season is sufficiently advanced that the eggs have been laid by fowl which have had the advantage of outdoor air and exercise at least for two weeks.

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Fortunately there has come a solution of the seed selection difficulty; there has been a wonderful revolution in seed culture. Thanks to the untiring efforts of the leading producers and distributors of garden seeds in Canada—The Wm. Rennie Co.—a new standard has been set. They have, by countless and costly experiments, ruthless roguing and unsparing selection, developed practically perfected types of the most useful vegetable seeds—24 different kinds in all. These types represent a combination of the best qualities found in the better classes of their respective kinds. We take pleasure in commending Messrs. Rennie in having achieved such excellent results and it is with confidence that we recommend our readers to try these grades this season. The new sorts are named "Rennie's XXX" and a full list of them may be found in their full page advertisement.

Will you please send me an extra copy of the March issue of The Canadian Horticulturist, it is so full of information and helpful that I would like my friends to see it, and may be able to secure some new subscribers.—Geo. H. Switzen, Norval, Ont.



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Ever-blooming Crimson Dwarf. Think of roses every day from June until frost out of doors.

The Central Nurseries

are supplying splendid value in Fruit and Ornamental Trees, Shrubs, Roses, Grape Vines, New Herbert Raspberry, Rykman Strawberry Plants in varieties. All well grown. True, dependable stock. Send for our Free Priced Catalogue. We ship direct to our customers with satisfactory results. Try us. 28th year.

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Our Vegetable Seeds are of undoubted purity and produce abundant crops. Our Flower Seeds are true to name and of the highest germinating power. Sutton's Specialties are always in stock. We do not make up special collections of seeds and advertise \$1.00 worth for 50c. as specials. We give every customer \$1 worth of pure seeds for every dollar spent with us. A trial order will convince you that we sell only those seeds that are sure to grow. Illustrated catalogues sent free to those who wish to grow pure seeds. SEND YOUR NAME TO-DAY.

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Varieties guaranteed true to name.



THREE W'S

Reported on by Mr. E. B. Stevenson, of Guelph, in 1906, as follows: "This new one was one of the best for market. At one of the pickings I picked 3 boxes without moving; at another later picking I picked one box for every 2 feet of row."

W. H. VANDERBURG, POPLAR HILL, ONT.

Mention The Canadian Horticulturist when writing.

The Canadian Horticulturist

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MAY, 1908

No. 5

Money in Growing Strawberries

W. H. Burke, Three Rivers, Michigan

THERE are few lines of legitimate enterprise that offer anything like so great an opportunity to the man or woman of moderate means seeking an independent livelihood as does the growing of strawberries for market. The demand for first-class strawberries never is supplied, and prices for high-grade fruit are almost universally high both in Canada and the United States, offering a fine inducement to enterprising folk to engage in the business.

It is difficult to believe, sometimes, the wonderful things that are being done by strawberry growers, not in isolated cases, but in hundreds of cases. Great results have been achieved by growers in Canada. As I am more familiar with those of the United States, however, I shall mention some of them in particular. Note, for instance, the experience of Mr. G. M. Hawley, of La Mesa, Cal., who, under date of September 10, 1907, relates his experience for the season. From two acres of plants had been taken up to the date named for the season, \$2,596, and the plants were still yielding at the rate of \$60 a week.

GOOD CARE GIVES BIG MONEY

Mr. Henry Clute, of Hunt, N.Y., engaged for the first time in strawberry growing in 1906, when he set out an acre of plants. He took excellent care of this acre, and in 1907 he received, in actual cash, \$888.17 from this first acre of plants that he had grown; and it is estimated that fully another hundred dollars' worth were grown on this acre which were given away, or consumed upon the place by Mr. Clute's family and the people engaged in gathering the fruit. This case indicates what a novice may do in strawberry culture. Mr. Clute's experience is not an unusual one. If a man has a little plain common sense, is willing to work and intelligently care for the plants, he need have no fear but that he will succeed in strawberry growing.

Mr. John Rucker, of Boston, N.Y., gathered more than 9,000 quarts of berries from a single acre in 1907, but as he sold them in Buffalo on commission, he received a little less than ten cents a quart, so that his total cash income from the acre was slightly under \$900. Mr.

H. B. Steward, of Myrtle Point, Ore., took \$1,500 in the season of 1907 from an acre; Mr. James Calder, of Clayton, N.Y., 1,000 plants, \$310; Mr. Columbus Knight, of Falmouth, Me., \$1,000 an acre; Mr. M. F. H. Smeltzer, of Van Buren, Ark., made \$1,079 from an acre in 1907; Mrs. Mary Malpass, of Ingersoll, Ont., sold \$560 worth of strawberries from an acre last season.

A BUSINESS FOR WOMEN

Strawberry growing is distinctly a line of work fitted for womankind. Some of

herself with dignity and comparative ease by successfully conducting a small strawberry farm. Hundreds of other women are engaged successfully in the work.

A SAFE AND SURE CROP

It may be said, in behalf of this line of horticulture, that it is one of the safest and surest known. In the fall of 1906, when the heavy early frosts destroyed vineyards and peach orchards, and even killed out many hardy apple trees, over a large section of the north central states, comparatively little damage was suffered by the strawberry. So hardy that it grows upon Alpine heights, pushing up its green leaves in the spring-time through the snows upon the lofty summits of the Swiss mountains, so accustomed to the tropic suns that it yields from early spring until late fall in Cuba and in other tropical lands—the universality of the strawberry plant is greater, perhaps, than any other known fruit. It will thrive and produce large crops of fine berries on any soil that will grow corn or potatoes. Set these plants in the spring of one year and they will yield an abundant harvest in the early summer of the following year—a crop that will bring a sum sufficient to put the grower upon his feet financially where, had he set out an orchard of any kind, he would be able to count upon no income worthy of mention under five years, even though all the circumstances were most favorable.

To the man who seeks an independent living and whose means are limited, no other line of enterprise offers so great advantages as strawberry production. One need not go to the Pacific Coast or to the Gulf regions, or to any other particular place in order to get a start. Whether a citizen of Canada or the United States, he may rent an acre or two near his own home, and begin at once to do business. There never has been on the markets of this country a half-supply of high-quality fruit that commands top prices.

There is a limitless field open to the man who will grow big red strawberries, well-flavored and firm, no matter where he may be located. Plant this spring.

Kind Words

Orchardists in every part of Canada should subscribe to THE CANADIAN HORTICULTURIST. The fruit raiser who can take this practical and progressive monthly magazine without making more from the reading of its fruitful pages than the cost of a year's subscription (sixty cents) must be a very dull scholar. The book is full of timely, helpful, practical information, on fruit, flower and vegetable culture. Its growth of circulation is a criterion of its merits and popularity. February, 1907's, circulation was 5,520 copies. February, 1908, it was 7,824, or an increase of over 2,300 copies in a single year—a record of which any publisher should feel justifiably proud. If you have an acre of orchard, you want this excellent publication.—*Bowmanville Statesman*.

the most encouraging experiences it has been my pleasure to know about, have been those of women strawberry growers. They usually press the children into service, and thus succeed in handling comparatively large areas at a trifling outlay for manual assistance. One woman whose letter I have had the privilege of reading, wrote from Santa Cruz, Cal., that in 1907 she took from one-tenth of an acre of strawberries, \$210 in cash. At Woodside, Minn., is a young woman of culture who supports

Forming and Pruning Young Apple Trees*

T. W. Stirling, Kelowna, British Columbia

THE general characteristics of well-shaped apple trees are somewhat as follows: "The main branches spring from the trunk at a good broad angle. They do not spring opposite to each other, but are distributed up and down the trunk. They are evenly placed around the tree, and do not interfere with each other. There is a definite centre stem from which they spring, and which extends above the main side branches."

Such a tree is of the strongest possible frame. It will carry its proper load of fruit without propping. There is no fear of it being split down to the ground, and ruined by an over-weight of fruit, or by wet snow, or any other cause. The greatest damage, that will be likely to happen to it, will be the breaking of a bough, an injury which can easily be repaired, and the loss replaced within a short time. If any main branch is overladen and breaks off, the injury to the trunk will be comparatively slight, there will be no splitting. Always fresh shoots can be grown from the centre to replace broken branches. After all, the main stem is the tree, keep that intact, and the tree is still there from which to grow any branches that are required.

To illustrate the advantages of this form it is only necessary to think of another form which is very common; that is, the tree, where the centre has been cut out and never replaced, where the branches all spring from about the same point as the fingers grow from the palm of the hand. Such a tree, when the day of trial comes, either from an overload of fruit, or from a fall of wet snow, and, sometimes, by reason of its own weight, will get tired and lie down, splitting right to the ground, so that there is nothing left from which a new tree can be grown.

TO FORM THE TREES

Shaping a tree is not the whole art of pruning. By shaping a tree is meant that treatment of a tree in its earlier years which definitely determines its general form. A tree may be well shaped in this sense, yet at the time woefully in need of cutting and clearing out, but this latter branch of the pruner's art will not be dealt with in this paper. The object of this paper then is to outline a method, and to state a few short rules, which, if followed, will ensure every tree growing up in a correct form. The rules are three in number, viz.: 1. Keep the leader; 2. have but one leader; and, 3, make the leader lead. The explanation of these, and the method of carrying them out in practice, is as follows:

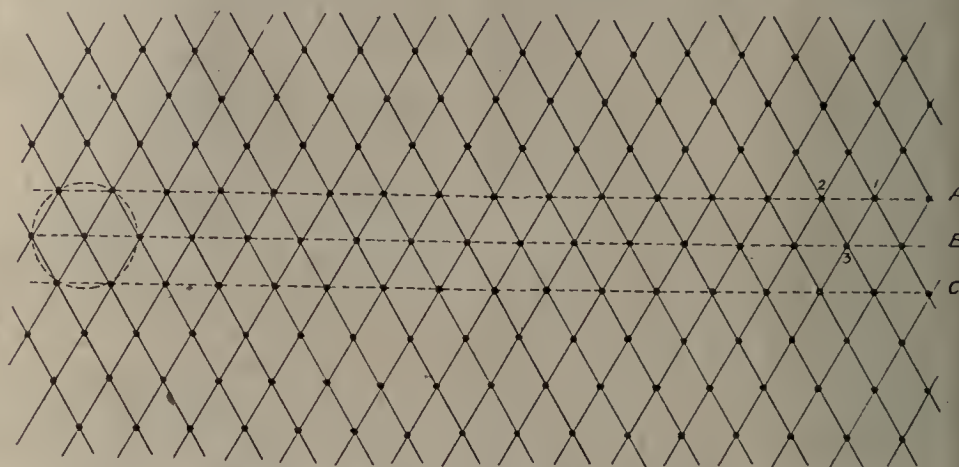
The tree is planted as a yearling, whip and cut back to about three feet, or a little less, from the ground, with the object of forcing buds into decided growth, so that there may be something to work on the next spring. The first real step towards shaping the tree is taken the spring after planting, preferably when the buds are just beginning to show green. It will be found then, if the tree has established itself, that some of the buds near the top, very generally three, have made a strong upstanding growth, coming out from the stem at a very acute angle; lower down, more shoots will have grown from the stem

right than three wrong—plenty more shoots will grow during the current year to fill any vacancies.

(Note.—Certain varieties of trees, for instance, the Northern Spy, have shoots which almost invariably spring from the stem at an acute angle. In such cases it cannot be expected that shoots will be found to satisfy the third condition mentioned above. It is as well then to use a spreader to cause the shoot to grow in the desired direction.)

CUTTING BACK

Having selected the shoots which are to remain, and removed the others, cutting them off close up to the stem, it



Method of Setting out Fruit Trees in an Orchard

B is a base line laid down through the middle of the orchard, on which are marked positions of one line of trees, say, 24 feet apart. *A* and *C* are parallel lines so placed with respect to *B* that 1-3 and 2-3 are each equal to 1-2, the distance apart the trees are to be. Positions of trees on *B* may be laid down when point 3 is fixed. All other trees are sighted in place from the positions on lines *A*, *B* and *C*.

at a greater angle than the leaders, and usually have not made such a strong growth. It is from these latter that the first tier of branches may be chosen.

LEADERS

Of the one, two or three strong upright shoots near the top, select the best and most upright as the leader, and sacrifice the remainder. If they are retained with the idea that they will become satisfactory side branches, amenable to discipline, it will be found to be a mistake. They will not do so, but will for years be a source of bother, competing continually with the leader for supremacy. Cut them out, leaving but the one leader.

SIDE SHOOTS

From the other shoots, lower down, select, if possible, three side branches. These must be evenly distributed around the tree in a horizontal direction. In a perpendicular direction they must be well separated. The angle they make with the trunk should be large, nearly a right angle. If there are not three shoots that satisfy these conditions, then leave only two, or one, that does—better one

is necessary to cut them back. It will be observed that the buds on the upper end of a wood shoot are better developed than those near the base. The object in view is to give the leader the start, and to have it keep ahead of the rest; therefore, do not cut it back too much. Cut it amongst these buds towards the upper end, perhaps one-third of its length down from the tip.

Perhaps, amongst the side branches retained, one or two are weak, and one or two are strong—these latter nearly as strong as the leader. It is they which require to be watched, or they will start racing for the supremacy with the leader. Put them in their right place right away. Cut them back to within three buds or so of the stem. The buds here will be very much backward, and by the time they are forced into growth, the leader will have shoots several inches in length, and there is no fear that the side branches will catch up.

An excellent article on "Irrigation in British Columbia," will appear in the June issue of THE CANADIAN HORTICULTURIST.

*Extracts from a paper read at last convention of the Northwest Fruit Growers' Association.

Fertilizing and Cultivating Orchards

Geo. A. Robertson, St. Catharines, Ontario.

I HAVE been using limited quantities of fertilizers, as also have some of my neighbors. I have seen peach orchards which had liberal annual applications of fertilizers, such as wood ashes, bone meal, and bone and animal meal, mixed with potash, and clean cultivation practised year after year, on sandy soil, until late in the season. From the results obtained, the expenditure was not justified by the increase of crop.

SOME METHODS AND RESULTS

How best can we fertilize an orchard? The answer can be given best by actual experiment. There are cases on record of apple orchards on heavy ground, where part had annual applications of bone and potash, while the adjoining part had the same treatment as to cultivation and spraying, but no fertilizer. There was no apparent difference in the amount or quality of the fruit; this is an exceptional case.

On sandy soils, unless we add plant food in some form, the tendency is for the land to become impoverished. When land becomes poor, there is no quicker and better method to restore it than by the use of a liberal dressing of barnyard manure. But if we follow this method too closely, we go to the other extreme, and often obtain rather too vigorous a growth of tree, especially in young orchards, which is not conducive to fruitfulness or profit; even if the trees do bear, the fruit will often ripen a week or ten days later than the normal period of ripening.

The common practice is to use barnyard manure occasionally, especially if the trees are suffering from the strain of bearing an overload of fruit. This is applied after growth ceases, in the fall, or in early spring.

CLEAN CULTIVATION

Clean cultivation is usually given and is best for peaches, cherries or plums. It is best, also, for pears, if one is not bothered with fire blight; if so, pears are left in sod, as the poorer or slower growth does not favor the development of the fire blight to the same extent. This clean cultivation should cease about the end of July, and it is better then to seed the orchard down with a cover crop.

COVER CROPS SHOULD BE USED

There are various kinds of cover crops to use. I have used crimson clover, mammoth red clover, hairy vetch, Dwarf Essex rape, rye or even wheat; if the land is underdrained, the latter will winter all right. To get a good catch of the clovers or vetch, the land must be rich, and kept well cultivated up to the time of sowing, or the clover and vetch may not get a good enough stand to winter

well; in this case rye is surer, although rye does not add nitrogen to the soil, as the clovers and vetches do. These are plowed under as soon as the land is dry enough the following spring; if very

of steamed dry bone dust, and a sack of 200 to 225 pounds of muriate of potash, or, if wood ashes are used to supply the potash, from one to two tons an acre, when the amount of bone may be less-



A Burst of Bloom on a British Columbia Cherry Tree

The variety is Olivet. Note the very heavy clusters of blossoms. This tree has been well fed and cared for. Good attention brings results.

heavy, we use a rolling coulter, kept sharp, and a chain, to turn the cover crop under.

By the use of suitable cover crops, and an application of bone dust for phosphoric acid, and potash, in the form of potash salts, such as muriate of potash, or sulphate of potash, or wood ashes, the land may be kept in good shape. A liberal application consists of 600 pounds

ened on account of the phosphoric acid contained in the wood ashes.

I do not use mixed fertilizers, as the manufacturer charges for mixing, but sow them separately. The bone meal is untreated by acid and, therefore, insoluble; the potash also is not soluble to any great extent; therefore the danger of loss by leaching is small. If barnyard manure is used and cover crops, the humic

acid formed by the rotting of the vegetable matter in the soil will render the phosphoric acid in the bone partly soluble while the cover crops themselves will feed on the bone and potash; then, when these plants rot in the soil, the plant food is again liberated.

We may attribute the poor results often noticeable from using commercial fertilizers by themselves, without cover crops, or not in conjunction with barnyard manure, to the lack of the soil conditions so necessary for the best results. A soil rich in humus has also another advantage; it will hold more moisture during a dry season than one which lacks in humus. As plants take their food in solution, there is a decided advantage in having more moisture, and also the germ life contained in such soil has a beneficial effect.

APPLY FERTILIZERS PROPERLY

We are altogether too prone to condemn artificial fertilizers; whereas the fault is often in not knowing how to use

them. An orchard should be kept vigorous, but avoid either extreme, in the matter of fertilization, if the soil contains the necessary plant food. If we give the trees a proper chance, they usually do their part, if they are the proper varieties, and planted on soil adapted to their growth.

From co-operative experiments carried on in connection with fertilizers and certain crops, the summing up of the whole has proved nothing as to any certain conclusions, but individual experiments prove that certain soils may be deficient, and that nitrogen, or again phosphoric acid will give the best results, or another soil may justify the use of potash, or, perhaps, any combination of these. One thing has been proved, and that is that if the soil is lacking in either phosphoric acid or potash, we cannot hope for fruit of the highest quality, or in any great quantity and, as sandy land is usually deficient in these, it is safe to apply such plant food to bearing orchards.

The Fameuse and its Future*

R. W. Shepherd, Montreal

MUCH has been written about the famous Fameuse (or Snow) apple, but its origin is obscure. Downing says: "A celebrated Canadian fruit, (probably an old French variety,) which has its name (Pomme de Nieve), from the snow-white color of its flesh, or, as some say, from the village from whence it was taken to England." This is erroneous and misleading. As a matter of fact, the variety is not known in France, and it is quite improbable that it was ever taken to England from France.

There is every probability that the Fameuse evolved from seed brought from France by the early missionaries, the St. Sulpicians, for instance, who were the first missionaries on the Island of Montreal. I believe the Fameuse to be fully 150 to 200 years old. Montreal was founded in 1641, and presuming that the Sulpician fathers brought over with them seeds of French apples for planting on the Island of Montreal, allowing several generations to evolve La Fameuse, we can safely suppose the variety was known and propagated since about 1730, and that this famous apple was under cultivation at the time of the capture of Canada by the British in 1760. The late Chas. Gibbs tells us that trees of Fameuse were sent to England and the fruit exhibited there as early as 1818.

NORTHERN APPLES BEST

This apple attains its greatest perfection in this northern climate. Our sunny days and cool nights in September are conducive to the attainment of the high

color. It is true that in the higher latitudes on this continent the apple attains the deepest red color. My first observation of this fact was at the Centennial Exhibition at Philadelphia in 1876. The fruit from all apple growing states and from the provinces of Canada, were exhibited on tables, over which the name of the state or province was placarded. Apples from the southern states showed very little color, and from the Pacific slope a pale color, and those from the states of Michigan, Ohio and New York, showed considerable color, but the highest colored apples of all were from the state of Maine and province of Quebec. On the Quebec table there was scarcely an apple that was not well colored.

What is more beautiful than the highly-colored Fameuse and McIntosh Red? But, to show the effect that climate has on apples, I was informed by the King's head gardener at Windsor, that the Fameuse trees at Sandringham, growing there since 1896, bear plenty of fruit, but without color, "not to be compared to yours, at all," he said. The Winter St. Lawrence, imported from England, under the name of "Manx Coolin," is not recognizable at all as grown in Canada, because so much improved in quality and color.

IS THE FAMEUSE TO GO?

For centuries the Fameuse has proved to be superior in quality to all of our other Quebec apples, and the most profitable. What are we going to do to preserve this wonderful variety? It has stood the test of years. It was almost wiped out of existence by the terrible

winter of 1859, but young orchards were started the following year on a larger scale than ever. The winter of 1903-1904 also was very severe, almost fifty per cent. of the bearing trees in some districts being killed or irretrievably injured.

What is being done to maintain the Fameuse? Very few new orchards of that variety are being set out. I venture to say that where one Fameuse is planted, four of McIntosh Red are set out. The latter is a fine apple, and the tree is hardier, having a better constitution than Fameuse. Being a new variety we would expect that, just as a young man, and lusty, it can withstand greater hardships than an old one.

The Fameuse has the disadvantage of age. Scions have been taken for years from diseased trees, or trees that are black-hearted, caused by winter injury. Too little care has been taken in selecting the scions from perfectly healthy trees; hence, the weakness of constitution in most of our Fameuse.

Unless orchardists undertake to set out new orchards the variety must die out. I predict that twenty-five years from now La Fameuse will be a scarce apple in the province of Quebec, and the prices for good apples of that variety will enhance every year. It is a pity.

TOP-GRAFTING THE REMEDY

Perhaps the constitution of the Fameuse tree may be improved, or its longevity increased, if we were to top-graft on hardy stocks, like McMahon, or other robust varieties. By nurserymen adopting this method, instead of root-grafting, or low-budding, we would overcome at least a tendency towards sunscald and disease of the trunk, or winter root-killing. This would necessitate double working, that is, the McMahon root grafted on the seedling, and the Fameuse top-grafted at three years on the McMahon, which, of course, would add to the cost of the nursery tree at four years of age. Unless some such method is adopted, it will be difficult to preserve La Fameuse for future generations.

This variety will not be abandoned by orchardists for the same reason that numerous other varieties of our fine Quebec seedlings have gone out of existence (such as Bourassa and Pomme Grise, which were shy bearers) because La Fameuse is a wonderfully productive and profitable variety, although in late years it has proved short lived. Therefore, if the longevity can be improved by top-grafting on hardy stock, it is certainly worth trying.

If the person who sent a question on growing rape in orchards will send his name, a reply will be sent by mail. All questions must be accompanied by name and address.

*A portion of a paper read at the last meeting of the Quebec Pomological Society.

Culture and Care of Annual Climbers

Wm. Hunt, Ontario Agricultural College, Guelph

FOR most annual climbers a light, rich, friable soil is necessary to ensure success. Plenty of well-rotted manure, leaf soil, or black soil from the bush should be dug into the soil



The Morning Glory Vine

where annual climbers are sown or planted. For many of them, except sweet peas and runner beans, a very deep soil is not so necessary; they require plenty of good soil and lots of room, however, to spread their roots in.

SWEET PEAS

Sweet peas require a deep, fairly rich soil to produce the best flowering results. A trench about a foot in depth should be dug in an open place in the garden. The trench should be about the width of a spade. At the bottom of the trench, place four or five inches of well rotted manure packed down firmly. Fill the trench with good soil to within an inch or two of the surface. Then make a shallow trench the whole length about three inches in depth. In this, sow the seed an inch or two apart and cover about two inches deep with soil, leaving a slight depression when the ground is raked over the peas. The plants can be thinned to three or four inches apart when the plants are five or six inches in height.

The flowers should be picked every day to help prolong the flowering season. If the flowers are not kept picked, they develop seed pods and stop flowering early in the season.

Sweet peas require plenty of water

at the roots. Sufficient water to soak the soil to the bottom of the trench should be given once a week in hot, dry weather. Start watering the plants before the lower leaves begin to turn yellow to get best results. Light waterings are of no use to sweet peas, give plenty of water and less frequent waterings, rather than only to sprinkle the top soil. In rich, loamy soil it may not be necessary to trench as mentioned, but I find that the plants stand the drought and heat of summer much better in any soil when treated as I have described.

Wide meshed poultry netting or brush wood stakes of maple or similar wood makes a good support for sweet peas. I prefer boughs of the maple tree when they can be had. The support should be five or six feet in height at the least. Sow sweet peas as early in spring as the ground can be worked properly, they cannot be sown too early.

CLIMBING BEANS

Scarlet Runner and Hyacinth beans like a deep rich soil, and plenty of water, and succeed best when a trench is made for them as recommended for sweet peas. The east or north side of a building will suit these beans very well, if not too shaded; but with plenty of water they will grow and flower very well in the open garden. Bean seed should not be sown until about the third week in May.

CONVOLVULUS

The common morning glory (*Convolvulus major*), Japanese Morning Glory (*Ipomæa imperialis*), cypress vine (*Ipomæa Quamoclit*), and the moon-flower (*Ipomæa grandiflora*) are all good annual climbers. An eastern aspect or a position where they are not exposed to the hot noon-day sun,

suits all of the Convolvulus family the best. Seeds of the moonflower are best sown early in-doors, or in a hot-bed, about the middle of April. About the end of May is early enough to sow convolvus seed out of doors.

There is no more effective climber than the wild cucumber (*Echinocystis lobata*), for covering a trellis quickly. It requires a rich soil and plenty of moisture overhead and at the roots to give the best results. Its beautiful racemes of white flowers make it a very conspicuous object when grown properly. A position shaded from the noonday sun on the east or northeast side of a building suits it best, so as to hold its foliage in good color.

JAPANESE HOP

Japanese Hop (*Humulus Japonicus*). Both the plain and variegated types of this plant are very pretty climbers. Sow the seed out of doors about the end of May. These do not object to a more sunny position than some climbers.

ORNAMENTAL GOURDS

Ornamental gourds are suitable only for the back yard or for covering an unsightly rubbish pile, or, at best, some place not too prominent in the garden. The shape of the fruit of many varieties makes them a curiosity. From a decorative point of view the running vine varieties of the vegetable marrow squash



Backyards of Two Neighbors Who Work in Harmony

The one at left is that of Mr. C. G. Pringle, Toronto, who being a commercial traveller has only Saturdays to devote to it. The results show what enthusiasm can do.

are almost as pretty. The fruit of the last named is useful for culinary purposes.

Cobea scandens is not an annual really, but like many other perennial plants succeeds well grown from seed as an an-

nual. Seeds of this should be sown indoors or in a hotbed or frame as early as possible in April. Sow three or four seeds in a three-inch pot. Place the seeds on edge about a quarter of an inch under the surface of the soil. Grow indoors or in a hotbed until danger of frost is over. Do not plant out-of-doors until quite late, about the first or second week in June or later. A light rich soil suits this climber. Its blue and white cup-and-saucer shaped flowers are very showy.

DWARF GROWING CLIMBERS

The climbers already mentioned grow to from ten to twenty feet in height. The following are two varieties not so rank in growth and more suitable for window boxes or rustic stands as trailers or climbers; seeds of these should be sown early, two or three in a pot: Canary Creeper (*Tropæolum Canariense*), and *Lophospermum scandens*. The latter is a very effective trailer for hanging baskets or window boxes. Its large purple gloxinia-like flowers are very showy.

CLIMBING NASTURTIUMS

Climbing nasturtiums or *Tropæolums* succeed well grown from seed sown out of doors about the second or third week in May. If early results are wanted, the seed can be sown earlier indoors, or in a hot bed or greenhouse. Sow two or three seeds in small flower pots, and transplant in border when all danger of frost is over. The leaves of the common climbing, and also the dwarf nasturtium are very tasty and nice used as a salad. The seeds when picked green also make a splendid pickle by merely putting them in jars in vinegar as soon as picked.

TRANSPLANTING CLIMBERS

Annual climbers do not transplant very readily, owing to their length of roots. When quite small they may perhaps be transplanted; even then it is risky. Sow the seed in the border where they are to grow. About the first or second week in May is a good time to sow most of them. By sowing seed early in pots the roots are confined in a small space and transplant easier. The roots of annual climbers should be disturbed as little as possible, at any time, to ensure success in their culture.

All of the climbers mentioned except the sweet peas, are quite tender, so care must be taken to protect them from late spring frosts. If sown near a fence or building, the growth should be kept at least several inches from the fence or building, especially if sown in a position having a north aspect, to prevent the foliage being burned by the hot sun.

Mow the lawn frequently. It will keep down most weeds.

The Narcissus Indoors and Out

Frank Gilbert, Orillia, Ontario

UNTIL Mr. Baker of Kew Gardens, classified the narcissus some twenty-five years ago, no one had attempted to put into order, the different types of this flower. His nomenclature is generally accepted, comprising some twenty-four species and upwards of three hundred varieties. Natural and garden hybrids are still on the increase. Hybridists are giving great attention to this popular flower and giving us flowers of great beauty, size, form and color. Mr. Baker has chosen to divide the plant into three groups:

1. Magnicoronati,—those with the long trumpet, with Ajax and Emperor, singles, and Van Sion, double, as the type.

2. Mediocoronati,—those with shorter trumpet, with Sir Watkin, Leeds and Stella, singles, and *N. incomparabilis*, for the doubles.

3. Parvicoronati,—with saucer-shaped cup, the poet's daffodil, of which *N. poeticus ornatus*, Burbidgei singles, *N. poeticus alba plena*, the lovely scented Gardenia flower, for the doubles. Under this group comes also the Polyanthus or bunched flowered, of which Paper White and Grand Monarque are types.

PLANTING AND CARE

The narcissus will grow and flower well in almost any position, planted on the lawns, under the shade of trees, but prefers a moist sandy loam of good depth, sheltered from the cold winds in the spring. Plant it where it is to remain for several years undisturbed, until it shows signs of being crowded.

After the foliage has died down, usually by end of July or August, the bulbs should be lifted, sized-up and replanted, taking care not to let them shrivel. Plant to the depth of four inches above the bulb. A good mulch of rot manure should be given. Planting should be done towards the end of September.

In giving a list of the best sorts, one is confronted with a long list. The aim should be, to prolong the season, commencing with Princeps, Mascimus, Van Sion, Emperor, Empress, Sir Watkin, Mad. de Graffe, Leeds, Horsfieldii, Cynosure, Stella, the varieties of poeticus, and finish the season with the lovely sweet-scented double Gardenia flower. *N. poeticus alba plena*, which should be included in every ones list.

GROWING NARCISSI INDOORS

The hoop-petticoat daffodil (*N. Bulbocodium*) and many other varieties require a greenhouse treatment, as they

are not hardy. Although gems in every way, with their rush like leaves, they are hardly large enough for commercial purposes, or to be left to take their chance with the rest of the family; these come from North Africa. *N. Triandrus*, known as Angel's Tears, comes from Spain and several varieties of this small group of botanical interest.

Some varieties force well and make a delightful change in the early months of the year. Paper White can easily be had in bloom by Christmas, also Mascimus, Princeps, Horsfieldii, Emperor, Exquisite (white), Van Sion, Sir Watkin, Leeds, Stella, Cynosure, and the Incomparabilis. The poeticus section do not force readily. *N. poeticus ornatus* is the earliest. This type has two flowers on one stalk.

As soon as the bulbs are received for forcing, no time should be lost in potting or boxing them. Boxes four inches deep are the best where cut bloom is wanted. Use light rich soil with a little well-rotted manure broken finely. Fill the box half full with a slight layer of sand. Then squeeze the bulbs in closely, fill in and make firm with your fingers. Give a good watering and set on a cold ash bed, in the open. Cover to the depth of four inches of coal ash or sand, to induce the bulbs to make roots, before they make top growth. This will add greatly to the size of the flower. A strict watch must be kept on this growth. As soon as one inch of top growth is made, usually in about six weeks, take out of the ash bed and place where they can readily be brought into the greenhouse.

To Make Straight Rows

It is much more satisfactory to work with straight rows than with crooked ones. The work may be done with reel and line. If these are not available, a simple plan to provide straight marks for planting is to use a wheelbarrow as a marker.

Nail a cross-piece against the front board to project on both sides of the barrel, equal distances from centre of wheel. Bore holes every six inches on each side of cross piece, then get a chain with a hook on one end to hook in the hole that will give the desired distance, allowing the chain to drag on the ground a foot or more. Pass back and forth across the path to be marked, being guided by the last mark made. Always move the chain to outside of your work, at the end of the row, letting the wheel of the barrow follow in the mark last made by the chain.

Hardy and Half-Hardy Annuals

Roderick Cameron, Niagara Falls, Ontario

WITH hardy annuals it is surprising what interesting and beautiful displays can be made. Sown so as to form ribbons, they are

large enough to handle they should be thinned from time to time, but not all at once. By having plenty of air and sunshine they will be stouter and stronger.

commencing with a crooked grass margin. All the other lines in the bed will be the same if measured or marked evenly. Until the line fence is reached, it is supposed to be straight.

We will now begin to sow or plant this border, and we will begin on the margin, as follows: *Alyssum Beuthomi compactum*, white, edge, four to six inches; *Asperula azurea*, blue, edge, six to nine inches; *Brachycome iberidifolia*, blue, edge, six to nine inches; *Calandrinia speciosa*, blue, edge, six to nine inches; *Gypsophila elegans*, lilac, edge, six to twelve inches; *Nemophila*, mixed colors from white to blue, edge, six to eight inches; *Oxalis Valdiviensis*, yellow edge, six to eight inches; *Sanvitalia procumbens*, double yellow, edge, six to eight inches, and *Tagetes pumila*, yellow, edge, six to eight inches. Any or as many as desired of these may be planted on the front line, and this front line should only be nine inches from the grass margin.

The following for the second line and one foot from the first: *Nigella*, Miss Jekyll, blue, twelve to fifteen inches, all summer; *Phlox Drummondii*, all colors, 12 inches, all summer; *Torenia Fournieri*, blue, ten inches, all summer, (should be started in a hot bed or greenhouse, very beautiful); *Bartonia aurea*,



A Backyard that Became a Garden in One Season

This little plot furnished fresh, crisp vegetables in abundance, better than money usually can buy. A little work, a few seeds, some fertilizer and lots of enthusiasm will produce wonders. This photograph was taken last spring at the residence of Mr. W. G. Rook, advertising manager of THE CANADIAN HORTICULTURIST.

very effective; in clumps or patches, they are also very attractive; and the dwarf varieties make fine edgings. The climbers are adapted to be used in a variety of ways, and charming displays are often produced by them. In some positions, sweet peas are among the best, producing their deliciously fragrant blossoms in profusion. Often the serious mistake is made in sowing them too thickly. If they do come up thickly they should be thinned out so that each plant may have room to grow and flourish. If grown in this way, owing to the increased vigor of the plant, a greater quantity and better quality of bloom can be had.

CULTURE OF HARDY ANNUALS

For general purposes, hardy annuals should be sown as soon as the soil will work nicely. To know this state of the soil, take up a handful, press it in the hand as hard as possible with the one hand by closing the fist, then open the hand; if the soil remains as pressed, it is not fit to work, particularly clay. I always prefer sowing seeds when the soil is on the dry side than wet. Sow them at a depth that will insure a requisite supply of moisture. The larger the seeds, the deeper they should be sown. Very small seeds should just have a mere covering. As soon as the plants are

er. Many of the hardy annuals may be sown in the autumn, and some of them do better in this way, but they are so few that we will pass on and recommend treating them in the spring.

To get the best results from sowing the hardy annuals, the ground should be thoroughly prepared. Use lots of well-rotted manure; in fact, it cannot be overdone in this respect. Put it on in the fall, dig it in deeply, and leave the soil on the surface as rough as possible during the winter. By so doing it will work up much better in the spring, and will be earlier.

The border or bed intended for these plants or seeds should be waving. Every line would look better if crooked. This can be accomplished very easily by



A Corner of Same Backyard Later in the Season

This photograph was taken from another view point. The garden contained tomatoes, beans, peas, radishes, lettuce, beets, parsnips, carrots, salsify, onions and everything worth eating that can be grown in one season. In the background (actually the front of the premises) was an excellent lawn with a flower border at the left. There is plenty of profit in gardening and, better still, lots of fun. Just try.

eight to twelve inches, yellow, in bloom two months; *Cacalia coccinea*, twelve to fifteen inches, scarlet, all summer; *Campanula macrosiphon*, eight to twelve inches, blue, two to three months; Candytuft, Empress, best white, July to fall, ten inches; *Chrysanthemum inodorum*, Bridal Robe, twelve inches, double white, grand to cut; *Clarkia*, double rose, all summer; *Dianthus nobilis* and *Dianthus Hedderwigii*, all shades, twelve inches, all season; and *Erysimum Arkansanum*, orange, twelve to fifteen inches, July to fall.

The following may be chosen from for the third line: *Eschscholtzia*, rose cardinal, madarin, twelve inches; *Convolvulus minor*, several shades, twelve to eighteen inches, all summer; mignonette, in variety, several shades, twelve to eighteen inches, all summer; nasturtium, dwarf, in several shades, twelve to fifteen inches, all summer; *Papaver umbrosum*, eighteen inches, dazzling vermilion, black blotch on each petal; and ten-weeks stock, all shades, twelve to eighteen inches, for two months.

For the fourth row, I would recommend the following varieties: *Celosia plumosa*, all shades of purple and yellow, eighteen to 24 inches (start these in a hotbed or small pots in the greenhouse early in March), all summer and autumn; *Arctotus grandis*, fifteen to twenty-four inches, lavender, all summer, pretty; Balsams in variety of color, eighteen to twenty-four inches, all summer; *Cereopsis*, several shades, eighteen to twenty-four inches, all summer; *Gaillardia picta Lorenziana*, various colors, of yellow, double, all summer; several shades, eighteen to twenty-four inches, all summer; and asters, several varieties, all shades, fifteen to thirty-six inches, all summer.

We have now come to the line fence. Against it place here and there, a few large stones or stumps of trees to make it a broken line or surface. On the front of these stumps or stones, plant canary bird vine, maurandia, *Ipomoea sanguinea*, *Ipomoea coccinea hederacea*. All of these are very neat and dwarf vines, and pretty in colors. In the spaces between plant *Humulus Japonica variegata*, *Cobea scandens*, convolvulus, and the tall growing nasturtiums. All of these will climb the net (chicken netting should be fastened on to the line fence for support), and over the fence in a rambling way that will look charming.

It is often desired to plant around the base of the dwelling, and in the angles of the building. In such places, make the soil rich and deep. Form pockets by placing stones together. In these pockets sow the desired seeds from the above list. The stones will save the plants from being trodden on.

Making Lawn Vases

As lawn vases usually are placed in a somewhat exposed situation, plants should be selected that will not suffer from being whipped about by the wind. Provide drainage by having a hole at the bottom of the receptacle. This will prevent the soil from becoming sour. In the bottom of the vase put a layer of broken crock or similar material, then fill it with rich compost, about one part of well-rotted manure to three parts of good garden soil. As the plants usually are put in quite thickly, they will need more feeding by August, when a top dressing, or an occasional watering of liquid manure, will be desirable.

A large plant, such as *Cordylone indivisa*, should be placed in the centre. Geraniums will do well for the next row, then dusty miller. A few of the deep, crimson-leaved achyranthes will give a fine color combination.

For the edge, use drooping plants. These may include vincas, green and variegated, single petunias, ivy-leaved geraniums, wandering Jew, climbing nasturtium, and many others. Be sure that you have plenty of trailers around the edge.

For good effect in lawn vases, the main thing is to put in plenty of plants, and then be good to them. They will need abundance of watering in warm weather.

Puddling Roots of Trees

Before planting trees, it is a good plan to puddle the roots, as it will help the tree's growth greatly. The puddle is formed by taking some heavy soil, throwing it in a large, tight box set in the ground, and mixing it with enough water to make a thick paste, into which the roots of the trees are plunged. It must be thick enough, that when the roots are withdrawn from the puddle, there is a thick coating of mud adhering to them.

This method preserves the roots in good condition. The moist coating of soil close to the roots affords moisture, and keeps out the air, and this is half the battle for success in transplanting trees.

To be permanent, a lawn should be thoroughly and carefully made.

Weedy lawns usually are those in which the sod is poor and thin.

When weeds become established on walks, destroy them by one or two applications of hot brine (one pound of salt to one gallon of water.) Brine, unlike dry salt, leaves very little color upon the walk.

Winter Annuals

T. C. Wheatley, Blackwell, Ont.

When the flower lover is a busy farmer or market gardener with, perhaps, only half an hour now and then that he can devote to his favorite pastime, he finds it a difficult problem sometimes to keep his beds and borders always looking attractive. This has been my experience in caring for a tulip bed and a border of late blooming perennials. A few years ago, I adopted the expedient of using what might be termed "winter annuals" to fill the space following the dying of the tulips, narcissi and other spring bulbs.

The Shirley poppy, if sown or self-sown in September, winters well and furnishes thrifty and gorgeous display during June. Although it will not stand much root disturbance in transplanting, I have had no difficulty in getting a good stand of plants which do not smother out with the tulip foliage. The plants come through best if they are about an inch across when they enter winter.

Another winter annual for the same purpose is the candytuft, particularly the White Empress variety. If sown early in September, it will make plants an inch or two high, in which condition they winter safely. They will transplant fairly easily and bloom much more satisfactory than if spring sown. My practice is to fill these beds with petunias and Drummond's phlox after the poppies and candytuft are past their best.

The rocket larkspur is very satisfactorily grown by fall sowing, but it is not so well adapted for filling a bulb bed. Another plant, the Golden Wave coreopsis, though a perennial, cannot, in this locality, be depended upon to live over winter, after it has once bloomed through a season. I always treat it, therefore, as a winter annual or biennial and find it a very satisfactory plant to fill in among the early blooming irises where it will bloom more or less throughout the season after the irises fade.

To the flower lover who can afford the time and money necessary for the use of florists' plants, all things are so to speak, possible, but the foregoing suggestions are made to afford persons of modest means and ambitions a happy way out of a difficulty. Winter annuals furnish a beautiful display pending the blooming of the later annuals.

Before closing this article let me urge everyone to plant at least a few tulips. The first cost is not heavy and the bulbs increase quite fast. After the end of three or four years, when every bulb bed should be lifted and re-set, an increase of five or six to one may be confidently expected. But whether you plant bulbs or not, it is worth while to try the winter annuals.

What Amateurs Can Do in May

BEFORE good work can be done in the garden, the amateur gardener must have the proper tools. One can garden quite satisfactorily with a garden fork, spade, rake, hoe and trowel. Another great utility is a wheelbarrow. A few extra conveniences that will prove very useful, are a fifty-cent garden line, a seventy-five cent pair of pruning shears and a ten-cent hand weeder. Get a few feet of hose if you can afford it.

When digging a plot of ground, always begin at one end and work backwards. Thus you will not be bothered by the earth you have already broken. When digging, work in fertilizer or manure at the same time. Drive the spade or fork in as deeply as you can push it with the foot, lift it up and down, lift the clod of earth, give it a smart blow to break it and go on to the next spot.

KITCHEN GARDEN

When digging soil for the vegetable garden, work in an application of well-rotted manure. A few wood ashes are useful.

Plant or sow hardy vegetables as soon as the ground is fit for them. These include onions, peas, spinach, radish, lettuce, carrots, beets and parsnips. Sow the seed in freshly-stirred soil.

A delicious plant for home-growing is salsify or vegetable oyster. Sow the seed as early as possible. Handle the crop the same as parsnips. Sand-which Island is a good variety.

AMONG THE FRUITS

Spray the leaves of your currant bushes for currant worm when the leaves are half open. Use one ounce of Paris green to about ten quarts of water. Dusting with hellebore will also do the trick. If there are no small fruit bushes in the garden, start a few this spring. They will grow almost anywhere, but good attention and care give best results.

Keep the old strawberry patch as free of weeds as possible, but this is not as important as during the first year of growth. If you are starting a new patch this spring, do not allow the plants to blossom. Cut the flower stalks and allow the plants to give all their attention to the production of runners and new plants rather than the production of fruit.

IN THE FLOWER GARDEN

Plants that have been started in the house should not be planted outside before being hardened off. Expose them for a few hours a day at first to outside influences. A cold frame is useful for this purpose. If this is not available, place the plants outdoors and take them in at night until they become accustomed to outdoor conditions.

Bulbs that have been left in the ground for two or three years should be lifted after flowering. Take them to an out-of-

the-way place in the garden and heel them in. Leave them there until July; then lift again and keep them in a dry place indoors until they are required for planting in the fall. When the time comes, only the best bulbs should be selected.

Read the excellent articles elsewhere in this issue on annuals and annual climbers. They contain much valuable information for the amateur gardener.

ON THE LAWN

Bare spots on the lawn may be re-

well raked and sown with some good lawn mixture that can be purchased from any seedsman.

If you purpose making a new lawn, do the work thoroughly. The creation of a permanent sod depends largely upon the preparation of the soil. Dig it deeply and evenly. Before sowing the seed, have the surface fine and smooth. After sowing, rake and roll.

When pruning the rose bushes cut out all dead and weak branches. Head back the remaining ones to a few inches of the



A Fair Guide to the Village des Aulnaies, Quebec.

Fruit experiment station and nurseries of fruit, forest and ornamental trees and shrubs, founded in 1860 by Mr. Auguste Dupuis, and managed by Mr. A. D. Vernault, proprietor since 1899.

paired either by seeding or sodding. Lawns that are becoming thin should be

old wood. The best time to prune most roses is just as the buds are starting.

How to Grow Asparagus

Frank Williams, Ottawa South, Ontario

ASPARAGUS has not been given as much prominence by the majority of market gardeners, as it deserves, partly on account of the length of time required to establish the plant, and also the difficulty of keeping the bed free from weeds and grasses of different kinds. Time and labor given to the preparation of the ground is well repaid in the growing of this crop.

A well-drained, sandy loam soil, that will not bake or get hard, is the best for this crop. If the land is not perfectly free from weeds, it should be made so by summer fallowing thoroughly. As asparagus is a great feeder, the soil should be made very rich to as great a depth as can be reached by the plough, say, one foot, at least.

While this permanent location is being prepared, seed may be sown in early spring, in rows about eighteen inches

apart in good rich soil. As the seed is slow to germinate, and the plants so small when they first appear, we usually mix some lettuce seed with the asparagus seed when sowing. The lettuce soon makes its appearance, and the row is much easier to follow when weeding.

Thin the plants to two or three inches apart to get strong crowns. If all conditions are right, the plants should be large enough for setting out the following spring, when planting should be done before growth starts.

Plants may be dug with a spade, but we prefer turning them over with a plough, and then shaking out with the fork. Care should be taken that the roots are not allowed to get dry, or heated, while out of the ground.

DISTANCE TO PLANT AND HOE

For a small patch on city lot, or the house garden, they may be set in beds

one foot to eighteen inches apart each way, but, when it is possible, single rows are to be preferred. For field culture, rows about four feet apart, and the plants set about eighteen inches apart in the row, is about right.

One of the most important things in the setting out of the plants is to have the trench so that the roots may be spread out flat, and the crown at least six inches below the level of the ground when firmed down as it was before it was plowed. This will permit of manure being plowed or dug under without injury to the plants. By plowing and harrowing every spring, is about the only

way clover, couch grass, and so forth, can be disposed of. It also leaves the surface in the best condition for after cultivation, the cutting of the crop, and is a great help in holding the moisture in the soil.

After the field is planted, as above, it should be given thorough cultivation and manuring, for two years before cutting is commenced. After that the grower must use his judgment, and must be careful not to weaken the bed. In this locality, the first year, cutting should cease about June 15th.

We have a patch of asparagus, planted in this way twenty years ago, which is

still in full bearing. With plenty of manure and thorough cultivation, any one may have the same.

In cutting for market, use a short bladed sharp knife, cutting just under ground. Never allow the heads of the stalks to open or become seedy-looking as this spoils the appearance. In bunching, keep the heads nice and even—shorter ones in one bunch, longer ones in another, and slender stalks and cull by themselves. Trim the butt of the bunch with a sharp knife, and stand in shallow boxes or baskets. You will always find ready market for your goods if these directions are followed.

The Manuring of Market Garden Crops

Frank T. Shutt, M.A., Chemist, Dominion Experimental Farms.

MARKET gardening is a special and intensive form of agriculture in which we seek to obtain a maximum of yield of first quality produce from a limited area of land. Quality ranks in importance with earliness and is to be considered before quantity. It is an essential. It is the factor that largely determines the commercial value of our product, though, I regret to say that in this country, our people, the purchasers and customers, are not as discriminating in this matter as they might be. Appearance and size are fairly good indications of quality, but they are not always infallible. One ought to be able to establish a reputation in vegetables, as one can in butter, and milk and eggs.

Quality in vegetables implies succulency, crispness, good flavor, absence of woody fibre or stringiness, pungency and bitterness. Take, for instance, early beets and turnips, to be palatable, there must be no development of woody fibres; radishes must be crisp, and free from pungency; lettuce must not be tough and bitter. How are we to obtain quality, apart from that inherent to and governed by the variety? By a quick and uninterrupted growth—the development must be rapid and continuous. Herein lies the success, as regards quality, and to a large extent, earliness, an important matter from the standpoint of profit. It is thus evident that the first question we have to answer is: What are the factors, the conditions, that lead to this rapid growth?

THE SOIL

First of all, there is the soil. It must not be too heavy, that is, sand, rather than clay, must predominate, and it must be rich in vegetable matter as derived from liberal applications of farm manures. It must be well drained and, in this connection, it is desirable to have a sub-soil of sand. We must aim at hav-

ing a warm, moist, mellow, well aerated soil, for such is needed to make a good seed bed, and to allow, and promote rapid extension and development of the root system.

NECESSITY FOR MANURE

You will notice that I am laying great stress upon having the soil an agreeable "habitat" for our plants. In the care of our animals, altogether apart from having them properly and liberally fed, we are careful that they should be warmly and comfortably housed, in quarters that are well aerated, and lighted. Our crops require equal and similar attention, if they are to thrive and do their best. Our soil, therefore, must be capable of retaining moisture, of holding air, of readily warming under the sun's rays, and of being responsive to the applications of manures and fertilizers. Such a loam, naturally light and mellow, can only be maintained by being constantly enriched by humus, or semi-decomposed vegetable matter—and our one great source of this material is stable manure.

Stable manures have been, and probably always will be, the main stand-by of the market gardener. It is impossible to dispense with manure, not for the reason that it is the only source of plant food, for it is not, but because it has all those qualities and properties which make the soil a suitable growing place for roots. It certainly supplies plant food in available forms, but equally important is its function in furnishing much humus-forming material, without which no soil can be at its best. All things considered, partially rotted "short" manure, is better than fresh "long" manure. If you have occasion to keep manure for any length of time, the heap should be kept compact and moist.

The store of manure may be supplemented in the market garden by the use of compost. The compost heap should

prove a valuable asset. From the manurial standpoint, good compost ranks very high, and the large amount of vegetable refuse, otherwise useless and wasted, that must annually be produced in the market-garden, makes it a fertilizer that practically costs nothing. It is well worth while, therefore, to look after the cabbage leaves, the lettuces gone to seed and a hundred other forms of refuse, and see that they go into the compost heap.

COMMERCIAL FERTILIZERS

Apart from favorable climatic conditions, and an agreeable soil, the quick growth which we seek, and which we know, means quality and quantity in vegetable growing, must be obtained by super-abundance—a reasonable excess of available plant food in the soil. This brings us to the subject of fertilizers which will be treated in the next and subsequent issues of THE CANADIAN HORTICULTURIST.

The Tariff and Other Things

J. W. Rush, Humber Bay, Ont.

There are a few things in respect to the tariff question that I would like to bring before the vegetable growers. I was in Sarnia last fall, where there are a lot of good growers. I said to one of them, "Do you sell your cabbages across the river in Port Huron?" "No," he replied, "as we have three cents a head duty to pay."

While our growers cannot ship profitably to the other side, there have been about 100 carloads of cabbages shipped from New York State to Toronto during the past season. They were fine, hard heads. I suppose that a proportionate amount has been shipped also to other Canadian towns and cities. These cabbages were bought by Canadian buyers at \$6.00 a ton on the cars at Buffalo. The buyers pay twenty-five per cent

duty, which amounts to \$1.50, and also about \$1.00 a ton for freight. The total cost in Toronto is about \$9.00 or \$10.00. They are sold for \$15.00 a ton. The city salesmen go to the retail stores two or three times a week.

There is quite a large quantity of cabbage pitted around Toronto by local growers, but there is no sale for them. One grower recently took a load to Toronto, but could not sell them at any price. He had to take them home and feed them to the cows. This should not be, but there will be no change until our Government imposes a duty similar to that of the United States: namely, three cents a head. The United States cabbages are sent to Canada to make the market better in Buffalo, and other cities across the line.

When the Tariff Commission met in Toronto, in November, 1905, the Hon. Sydney Fisher told me that he could grow turnips on his farm at a cost of six cents a bushel. Perhaps he can, but the man who can make money growing cabbages at \$6.00 a ton, should be appointed cup-bearer to the King.

WHAT TO GROW THIS SPRING

As spring is here, many market gardeners are wondering what they should grow. Shall it be those Montreal melons that cost thirty to fifty cents each to grow, and that will sell in Toronto at three melons for twenty-five cents? I think we had better grow early vegetables, making a point to get them early and good. The city people are enquiring for Canadian grown asparagus and spinach.

There should be a lot of early green onions, after all the "stiff-necks" that were left in the ground last fall. There is plenty of money in green onions, if you know the way to get it out of them.

For spinach and early beets, be sure and have a nice piece of soil, well manured and work it well. Keep to the old varieties that you have tested, such as, in beets, Crosby's Egyptian, and Eclipse.

According to the old saying, "The good follows the bad," onions should do well this year. Sow onions early and be sure to have the soil well worked before sowing.

I would like to hear how our mushroom growers are getting along. One man not far from Toronto, made quite a success this winter. He said that mushrooms are selling fast at sixty cents a pound.

Among the many good things that will appear in the June number of THE CANADIAN HORTICULTURIST, will be articles on growing squashes, on garden salads and garnishes, and on the white fly of greenhouses.

Pointers on Onion Culture

Herbert Hachborn, Echo Place, Ontario.

TO grow onions successfully, the first thing to do is to get the soil properly manured and thoroughly worked. The best method of treating the soil is to spread the manure in the winter or early spring, so that the spring rains can wash the fertilizing elements into the soil.

It is a mistake to change onion ground every year. Onion ground should receive about twenty-five loads of well-rotted barnyard manure to the acre every year; then, by the end of the second or third year the ground will be in first-

or fall, to prevent maggots from working. When sowing the seed, I mixed a little powdered sulphur and salt with it; this also acts as a preventive against maggots.

Care should be taken not to get the ground too rich with nitrogen, as this causes "thick-necks," or scallions. The best thing to do with thick-necks is to bunch and sell them for green onions.

Celery for Profit

J. H. Copeland, Chilliwack, B.C.

The soil for celery should be a deep peat, with plenty of natural moisture. It should be drained to the depth of two and a half feet, so that there will be no stagnant water lying in the ground. Next break the sod with a good, deep furrow. Turn it over well in the fall, and disk, and as early as possible the following spring. Disk it again, and apply about five hundred pounds of some good fertilizer per acre, with about forty bushels of lime, fifty bushels of wood ashes, and half a ton of salt an acre. Disk it every week till time to plant.

Sow the seed in an open bed, as soon as the frost is out of the ground in the spring. In peat soil the frost is usually all out by the middle of April. Give extra care in well lifting the soil for the seed bed. Do not cover the seed too deeply. Tramp the soil very firmly with the feet before sowing, and roll after with a hand roller. Do not sow the seed too thick as the plants will be slim if this is done. About one hundred plants per square foot, is a good stand for first-class plants. Keep the plant beds well weeded, so that the plants will be strong and bushy.

When the plants are about two and a half inches high, start to plant in the field. Set the plants six inches apart in the rows, and have the rows four feet apart. Stretch a line straight across the field, then walk on the line, and you will have a good plain mark to plant by. Make the holes with a pegger. One man can make holes for two or three planters, who should plant 6,000 per man in ten hours. Great care should be taken to press the soil firmly about the roots, and see that the tap root of the plant is straight, or else your plant will be a failure. After planting keep free from weeds and cultivate the same as any other crop of roots till large enough to bank up for blanching.

There is nothing better for lice on cabbage than kerosene emulsion.

No single factor that enters into the production of crops, is more important than good pedigrees in seeds.



A Good Commercial Dozen of Celery

Grown by Mr. J. H. Copeland, Chilliwack, B. C.

class condition for onions. If the ground is changed every year it will not be in such good condition. I have grown onions on the same piece of ground for the last five years, and had a better crop last year than ever.

As soon as the ground is dry enough, plow down the dressing and work it well with a disc or acme harrow, and allow it to stand about a week, then work it again, as this working will kill any weed that may have started. Many growers believe in plowing the ground in the fall, as onions require a hard bottom, but I find that I get just as good a crop by plowing in the spring. Onions are cultivated mostly by hand, and the ground will naturally form a hard bottom.

It is well to sprinkle a little air-slacked lime and salt on the ground every spring

The Canadian Horticulturist

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EDITORIAL

CHILDREN AND GARDENING

The influences of improving the grounds around and about schools, churches and the homes of our people, both in rural and urban communities, are many. They are felt not only by the old folks who have planned or performed the work, but more particularly by the children, for it is they who are the most susceptible to the beauties of natural associations. If the children are constantly surrounded with those influences that ennoble them, they will become satisfied with nothing less. When in later life they have homes of their own, they will strive to make them as pleasant as the homes of their youth, for they have been educated to appreciate no other environment. They will make better citizens, for the habits formed in childhood have much to do with shaping the destinies of the children when they become men and women.

To assist children in forming good habits, we must cultivate their taste for the beautiful in nature. Teach them to find, "Tongues in trees, books in running brooks, sermons in stones and good in everything." Let them have a flower garden of their own, and, if necessary, assist them in its proper care. Allow them to select their favorite flowers to cultivate and nurse. If they have no favorites, teach them to gather the common wild flowers of the fields and to transport them to the waste and needy spots about their homes. Convince them that they can be really useful and they will work with the greatest enthusiasm.

Not only at home should the children be encouraged to assist in beautifying the grounds but also at the schools. Nothing will make the child like school more than beautiful school surroundings, particularly those with which he has had something to do in the making. Resolve this spring to have the school grounds in your district or town the best for miles around and have the grounds about the home even better.

PROTECT THE BIRDS

Birds are of great economic value to fruit growers and gardeners. When they are protected and encouraged, the orchardist or gardener gains more than is generally appreciated. They keep in check great numbers of insects and vermin. It is true, that a few species are partial in diet to fruit and other crops, but the brief season of crop pilfering is a comparatively insignificant part of the otherwise beneficial yearly life of these and other birds. For the services of our useful birds, the growers must be content to give something in return. The evil that birds do often may be prevented by ingenious contrivances that do not harm the bird; if not, these comparatively small evils should be patiently endured for the common good.

At a recent meeting of the Hamilton Society for Nature Study and Bird Protection, Mr. Herbert C. Merrilees delivered an excellent address on this subject and pleaded for the protection of birds on both sentimental and economic grounds. Some extracts from the address are as follows:

"Those who know little or nothing of the 'real economic value of birds are liable 'to be unjust. We are likely to lay the sins 'of a particular bird upon the whole tribe. 'We see a Cooper's Hawk sweep into the 'yard and strike a chicken and we are out 'with a gun for every other hawk we can

"see, regardless of the fact that many 'of the hawks live almost entirely on squirrels, moles, mice, grasshoppers, beetles 'and the like, and are among the most 'useful birds we have. It is a grave mistake to sacrifice a hundred birds for the 'sins of one guilty bird. A man who lives 'in the country ought to have a common 'knowledge of bird habits. For his own 'good and the welfare of the country, he 'ought to be able to discriminate between 'good and bad wild birds just as he learns 'to distinguish between good and bad domestic birds and animals.

"Because a Blackbird is in a grain field, 'it does not signify that he is doing harm. 'Woodpeckers are often shot for coming in- 'to orchards, when a careful examination 'will show that they are destroying injuri- 'ous insects. There are many instances 'where birds have been killed because of 'their destruction to fruit, when an exam- 'ination of their stomachs showed that they 'were eating more insects than fruit.

"There are few instances where birds be- 'come so abundant as to do more real harm 'than good. For although some of the 'birds eat fruit, this is not the main part 'of their diet. The majority of the birds 'are continually hunting and catching in- 'sects. During the breeding season, they 'live largely and rear their young almost 'exclusively on this food. Wherever insect 'food is plentiful, the birds resort to such 'a locality."

No person should be so blinded to his own best interests as to destroy by wholesale, creatures which are his best friends. Because birds occasionally make raids upon the orchard is no good reason for slaughtering them. Treat them as you would domestic animals when they commit devastations; in the case of animals, protect the crops from future raids by erecting or strengthening barriers; for birds, use decoy fruit trees, bird netting, scare-crows, and so forth. The birds are preserved, thereby, to turn their energies to better account in destroying insect pests. Birds are among the most valuable assets of the farm, the orchard and the garden. Protect them.

More fruit growers should keep bees. The transfer of pollen from blossom to blossom on fruit trees is done almost exclusively by insects, mostly bees. Even under most favorable circumstances, countless numbers of bees are required to do the work in localities that are devoted largely to fruit growing. During cloudy and rainy weather, larger numbers are required or else the work goes undone, and, naturally the work farthest from the hives goes undone most often. For this reason, the grower who keeps bees in his orchard is the one whose trees would profit most in unfavorable weather. In addition to the bees' value among the blossoms, the product of their labor—honey—is worth money. Six hives will furnish sufficient honey for home use and give a profit besides. It pays to keep bees.

The secretaries of horticultural societies are requested to send copies of their lists of premium offers and options to THE CANADIAN HORTICULTURIST. In many cases recipients of plants, shrubs and trees do not know how to plant and care for them. To aid these persons, and incidentally to assist the society, articles on these subjects, as suggested by the nature of the premiums offered, will be published. The secretaries are asked, also, to send copies of papers on practical subjects that may be read or discussed at their meetings.

The Ontario Fruit Growers' Association.

A. M. Smith, St. Catharines, Ontario

FIFTY years ago fruit growing as a business was almost unknown in Ontario. The tables of our country were scantily supplied with fruit and a large proportion of that which was consumed came from the United States. It was generally believed that the climate in most parts of the province was unfavorable for fruit growing. Experience has demonstrated, however, that there is scarcely a place where some kind of fruit can not be produced in perfection and many sections that were once considered unadapted to fruit are producing varieties, especially of apples, that can not be equalled in the whole world. Our tables, at one time so scantily supplied with fruit, which was considered a luxury, are now loaded with luscious fruits, which have become a necessity, and we are exporting millions of dollars worth every year. Fruit growing has be-

resolved to form a fruit growers' association for Upper Canada. The following officers were appointed: Judge Campbell, president; Dr. Hulbert, 1st vice-pres.; Mr. Geo. Leslie, Sr., 2nd vice-pres.; Mr. Arthur Harvey, recording secretary; Mr. D. J. Humphrey, corresponding secretary; Mr. Edward Kelley, treasurer.

Judge Campbell died within a year and was greatly missed by the association, which languished for about two years for the want of their leader. Through the efforts of the late Dr. Craigie, of Hamilton, it was called together again on September 21st, 1860. Nine members were present. Dr. Hulbert, the vice-president, occupied the chair. After a brief session they adjourned to October 24th, each member being requested to bring samples of fruit. At this meeting seventeen members were present with quite a display of fruit, and some profitable discussions took place. It was again decided to adjourn to January 16, 1861, that being the time appointed for the annual meeting and election of officers.

At this meeting, Dr. Hulbert delivered an address on "The Culture of the Grape in Canada." The officers elected were Judge Logie, Hamilton, president; Dr. Hulbert, secretary; Dr. W. Beadle, treasurer. It was afterwards found inconvenient to have the office of secretary and treasurer separate, and they were both given to Dr. Beadle, which office he held for over twenty-three years. Judge Logie held the office of president six years, during which time meetings were held two or three times a year, where fruit was exhibited and discussions upon various points of fruit culture were held and much useful information gained. Committees were appointed to enquire into the condition of fruit culture, varieties grown, and so forth, in different parts of the province. These meetings were held at Grimsby, Hamilton, Paris, St. Catharines and Toronto, and resulted in much useful information being obtained, some of which was published in 1863 in which report, returns were made by secretaries and committees from

thirty different counties of Ontario, enumerating the different fruits successfully grown.

In 1867, the Society had attained a membership of 30. Judge Logie retired from office and was succeeded by Mr. W. H. Mills of Hamilton. In 1868, the society, largely through his efforts, was incorporated under the Agricultural and Arts Act, under the name of "The Fruit Growers' Association of Ontario," and became entitled to a grant from the government of \$350 a year, which enabled it to collect and publish the experience gained by their active workers. This was widely distributed and became a great incentive to the fruit business.

From that time the work made rapid progress. The membership increased to over 200 the first year. The society became a veritable missionary enterprise. It held its meetings in nearly all of the principal towns and cities in the provinces, preaching and teaching fruit growing and horticulture. Every year there was sent to the members, some tree or plant for them to test and report upon. In this way much valuable knowledge in regard to what was adapted to the different parts of the province was obtained. The membership increased in a few years to about 4,000, and the association became the largest horticultural society in America, if not in the world.

In 1876, the association did more to enlighten the United States and all the nations of the earth, in regard to the climate of Canada and fruit-producing possibilities than had ever been done before, by their exhibition of Canadian fruits at the Centennial World's Fair in Philadelphia. Where fruits will grow in profusion, there must be something more than a land of snow and ice as Canada was thought to be by most of our neighbours at that time. Our exhibit astonished the world. A continuous supply was kept up from early to late fruits, during the season. Visitors could scarcely believe they were grown in the open air in cold Canada.

(Continued on page 117)



Mr. A. M. Smith.

The only living member of those who first organized the Fruit Growers Association of Ontario, which will be 50 years old next January,

some one of our most important industries. What has been the most prominent factor in bringing about this great change? I answer without fear of contradiction: "The Fruit Growers' Association of Ontario."

As an account of its origin and some of its early struggles and progress may be of interest to the readers of THE CANADIAN HORTICULTURIST, who are enjoying the "fruits" of its labors, I will attempt to give you a brief outline of its history.

To the late Judge Campbell, of Niagara, and the late Dr. Craigie, of Hamilton, belongs the honor of being the originators of the association. A few people in the Niagara district, particularly near Niagara, Grimsby and Hamilton, were becoming interested in fruit growing. The idea occurred to these men that an organization among fruit growers, followed by meetings at stated periods would be productive of good and stimulate the progress of fruit culture throughout the province. They communicated their views to the late Dr. Beadle of St. Catharines, Geo. Leslie, Sr., of Toronto, and others, who heartily endorsed them. It was finally decided to call a meeting which was held on the January 10th, 1859, at Mechanics' Hall, in the City of Hamilton, the four gentlemen named and fourteen others being present. It was unanimously

The Similkameen Valley

By the representative of the Canadian Horticulturist, who visited British Columbia in the interests of Western Fruit Growers and of this publication.

WITH the completion of the Great Northern Railway from Spokane to Vancouver, the fruit districts of the Similkameen Valley will become a centre of activity. While our representative was in British Columbia last fall he heard so much talk, lacking in definite information regarding the Similkameen, that he decided to visit the Valley and become personally acquainted with the possibilities of that section, for fruit growing.

Until recently the only way to reach Keremeos, which is the largest town in the Valley, was by stage. The Great Northern Railway now have their road completed for a considerable distance past Keremeos, which makes it possible to reach most parts of the Valley, from the east, by rail from Spokane, Wash., or Midway, B.C. Our representative being at Penticton, B.C., travelled by stage over the range of mountains separating the Okanagan and Similkameen Valleys. This route afforded a splendid opportunity for seeing the land at closer range than from a car window.

Unlike some of the other fruit sections in British Columbia, fruit has been grown in the Similkameen for over 30 years, and the results have been everything to be desired. The oldest settler in the Keremeos section is Mr. F. Richter, who has lived there for over 44 years. Although the chief occupation of Mr. Richter has been ranching, he has devoted considerable attention to fruit growing around his home. Perhaps the best way to describe Mr. Richter's success would be to quote his own words. He said: "I find that both hardy and tender varieties of fruit thrive here to perfection. This is accounted for by the low altitude and the dry, sunny atmosphere. This is an irrigation country like most of the best fruit districts in British Columbia. The valley is well watered, however, as the Similkameen River has many tributaries, including the Keremeos and Ashnola, which may be used for irrigation. The Similkameen and Ashnola Rivers will afford a sufficient water supply to irrigate the whole valley, if it is properly utilized.

"Everything that is grown in a sub-tropical country can be grown to perfection in this valley. Corn ripens in July and can be ripened at intervals as late as November. Four full crops of alfalfa are harvested in a season. I sometimes allow the cattle to run on the fourth crop. From the other three, I get an average yield of 5½ tons to the acre. All the hardier fruits, such as apples, pears, plums and cherries grow to perfection and in abundance. This district is particularly adapted for tomatoes. Watermelons, peaches, apricots, walnuts, and almonds and all the different varieties of grapes, including the Tokay, Muscat Alexandra, Zinfindell, German Resling, Concord and Niagara, do equally well. It is usually a matter of surprise to fruit experts, who believe that the delicate Black Hamburg grape can not be grown in British Columbia, except under glass, that I have grown them here in the open at Keremeos successfully for the last 10 years and also the *Prunus Simonii*, a tender variety of fruit, supposed to be of Chinese origin. We grow the sweet potato and very good samples of tobacco.

"As to quality of our fruit, I might refer you to the result of the last Horticultural Fair at London, Eng., where British Columbia fruit captured the gold medal, while at the Provincial Fair at New Westminster, last September, which was open to the world, my own small exhibition of 100 pounds, net, took 24 prizes—18 first and 6 second—and it is a well known fact in the Valley, that my orchard was in the poorest condition it has been for the past 10 years.

"To the fruit grower looking for a location, this district, with its mild, sunny climate, clear spring water, railroad facilities, with a surrounding mining country, demanding an ever increasing supply of fruit, can not be too highly recommended. We have people here from various districts, including California, and they are unanimously agreed that for an all-year climate, this can not be excelled."

These statements by Mr. Richter regarding the Similkameen, have been vouched for by the leading fruit growers in British Columbia. The majority of them acknowledge that, as quickly as this valley becomes better known, it will be one of the best fruit growing sections in the province. The success attained by Mr. Richter has caused him to sell his ranch to a large land company, that is now placing it on the market in small blocks. The irrigation system is well under way and an ample supply of water has been provided for.

The town site of Keremeos is near the head of the valley, and where the creek of the same name joins the Similkameen River. This is one of the finest sites that could have been selected. Owing to the tropical climate, it should not be long before Keremeos will be known as "The Pasadena of the Canadian California."

The valley is the warmest and driest in British Columbia. It varies in width from one-half mile to four miles from mountain to mountain, and contains some of the richest land in the province. The bottom lands are sub-irrigated, and have for years been used as meadows. Rising above these meadows, in gentle slopes, are benches of large area. It is on these benches that the largest amount of work is being done. It only requires the water, which will be furnished by irrigation, to enable the land to produce the finest fruit.

The following are a few results obtained by some of the growers in the Similkameen

Valley: four and a half acres of onions produced 95 tons at \$22 a ton, or \$2,090; ten acres of potatoes produced 200 tons at \$14 a ton, or \$2,800; one acre of tomatoes, 5,000 plants, bore 85,000 pounds at two cents a pound, or \$1,700; two-thirds of an acre of strawberries produced \$900; tobacco produced \$100 an acre between fruit trees; a

twenty-acre peach orchard brought \$10,875 on the trees; one and a third acres of pears brought \$1,420; one apple orchard produced 12 tons an acre and brought \$750 an acre. Now that better transportation facilities have been provided, it is expected that there will be a great rush to take up land in this section.—W. G. R.

The Fruit Bark Beetle

L. Cæsar, Ontario Agricultural College, Guelph.

MANY cherry trees in the Niagara district last autumn were losing their leaves as if a blight had suddenly come upon them.

Having heard of this, the writer along with one or two of the fruit growers made an investigation in September, and found that, in many cases, the real cause of the withering of the leaves was that a tiny beetle was attacking the trees. This beetle is known as the fruit bark beetle, or shot-hole borer, *Scolytus rugulosus*.

The beetle is about one-eighth of an inch long and one-third of this amount in breadth, is almost cylindrical in shape, and black in color. In dead trees it makes little round holes like shot-holes, and from this sometimes gets the name of shot-hole borer. If the bark of badly-infested dead trees be removed, the whole surface of the wood is often found to be engraved with little tunnels or channels, running in different directions. In these channels, the white, legless grubs of the beetles are often found, it being the grubs that make the chambers.

The insects, it is generally believed, pass the winter in the grub (larval) stage, though there are many indications that eggs also remain over winter in the little pockets under the bark, along the small tunnels made by the females. In early spring, the larvæ or grubs, pass through their transformations and come forth as beetles, and almost at once seek weakened or dead trees or branches to lay their eggs in. Often, however, as was the case last year, they will, when numerous, spread from diseased or dead trees to perfectly healthy ones and there do much damage. When a healthy tree is attacked, the presence of the beetle can easily be seen by the gummy exudations that come forth from the wounds made. Attacks may be made on any part of the tree, trunk, branches or twigs.

Cherry trees are not the only ones to be attacked. A few plum trees at St. Catharines were found to be badly attacked, and in the United States, peach trees are, as a rule, worst assailed. Apple and pear trees also are sometimes attacked.

Though the insect did much harm last year and will probably do much this year also, unless precautions are taken, yet the farmers need not become unnecessarily alarmed. The insect has been known in Canada for some time, and in some parts of the United States has, on several occasions, been very destructive, but it has been possible to control it in each case.

In seeking a remedy, we must remember first, that the insects pass the winter in one form or another under the bark; secondly, that in almost every case they attack dead or weakened trees before going to healthy ones. Consequently, the remedy is to cut out and burn every dead fruit tree of whatever kind, and also any very weak or dying tree, and all dead or badly-attacked branches. These must not be thrown into heaps and left there, but must be burned at once. All old brush piles should be destroyed in the same way. In this manner most of the hibernating larvæ and eggs will be destroyed. If, in addition to this, trees that have been slightly attacked have manure scattered around them, the in-

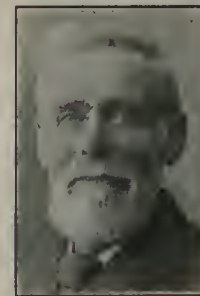
creased vigor thereby given will often enable them to recover from the injury.

Spraying is usually resorted to as a means of warding off attacks. A carbolic and soap wash is usually recommended, one quart soft soap or one pound hard, one gallon water, half pint crude carbolic; dilute to 40 gallons. Such a wash must be put on in the spring, in April, as the adult beetles begin to emerge very shortly after the warm weather begins. There seems to be no reason why lime-sulphur put on at this time should not also have the same result. To secure the best results from either of these washes, it will be necessary to spray, at least, the infested trees a second time, after an interval of a week or ten days.

It is perhaps necessary to call the attention of fruit-growers to the fact that in localities where the San Jose scale is prevalent, trees not treated for this scale are sure to become weakened or killed, and afford favorable breeding centres for the fruit bark beetle. Hence, by using lime-sulphur to check the San Jose scale, preventive measures will also have been taken against the beetles.

Of Wide Influence.

Editor, THE CANADIAN HORTICULTURIST: The announcement in the December issue that THE CANADIAN HORTICULTURIST had completed its 30th year, caused me to look up back numbers. It is 27 years since I first became a subscriber.



Mr. J. C. Gilman

While THE CANADIAN HORTICULTURIST may have been intended primarily for Ontario, its scope of usefulness has not been provincial. Fruit growers in every province have found something within the pages of the publication to enthuse, encourage and instruct them in producing more and better fruit, to grade better, pack better and to place before the consumer, in the best possible condition, the products of their orchards. I wish the publication continued success.—J. C. Gilman, President, New Brunswick Fruit Growers' Association, Fredericton, N.B.

In future the Ontario Horticultural Exhibition will be under the control of an Association that will be called "The Ontario Horticultural Exhibition Association." At a meeting of the directors of the association held recently, it was decided to organize and become incorporated under The Associations' Act. A constitution and by-laws were adopted. The following officers were elected: Hon. Pres., R. J. Score, Toronto; Pres., W. H. Bunting, St. Catharines; First Vice-Pres., H. R. Frankland, Toronto; Second Vice-Pres., Mr. Couse, Streetsville; Treas., J. H. Dunlop, Toronto; Sec., P. W. Hodgetts, Toronto.

NOTES FROM THE PROVINCES

British Columbia

J. J. Kirby, Port Kells

The fruit industry in this district is as yet in its infancy. We have quite a number of good, sturdy, young orchards started. The King, Wealthy, Winter Banana, and Gravenstein are the favorites in apples. The Winter Banana is a strong grower and a prolific bearer, giving a fairly good crop at four years. I would advise planters to go heavy on this kind, as it is a very showy, rich and a ready seller.

The Bartlett, Beurre Rose, and Keiffer are the favorites in pears. Royal Ann, Early Richmond and olivet are the choice in cherries. In plums, Bradshaw, Peach, Grand Duke and Italian prunes are being planted.

The largest growers have decided to plant the same varieties, to enable them to have a large bulk of each kind of fruit, and to ship or make it worth a buyer's time to come in and make a bid for the fruit.

It would be a great help to the growers in British Columbia if all the nurserymen in this province would advertise their trees and plants, and so forth, in THE CANADIAN HORTICULTURIST, as it would save us time and money in procuring the necessary stock for our planting.

British Columbia Inspection

Editor, THE CANADIAN HORTICULTURIST: I am just starting an orchard and would like to get all my nursery stock from the east, but am handicapped to a large extent by the British Columbia law. All the nursery stock entering the province must be inspected at Vancouver, and this causes extra freight charges. Now, could not the eastern nurserymen try and have it arranged to have the stock inspected at Revelstoke or at Kamloops? I take a great interest in this for I would like to get my stock from the east. I bought some stock from Stone & Wellington, of Ponthill, Ont., last year. They were shipped about April 1, and I got them on June 8. By this time, half of the stock was in leaf and so I lost one-third of them. Last fall I got some more. They left the east on Oct. 18, and I received them Nov. 26.

These instances show the time it takes to ship trees from the east to this province. The delay in a large part is caused by the inspection at Vancouver and is the cause of a lot of Canadian money going into the United States. The trees coming from the east cost me about 84 cents a tree and I can get them from the United States for about 43 cents a tree, and it only takes two weeks for them to get here. The eastern stock, however, is much better for this north-western country.—John S. Twan, Cariboo B.C.

Quebec

The County of L'Islet Horticultural Society's program for 1908 includes the following features of value to its members:

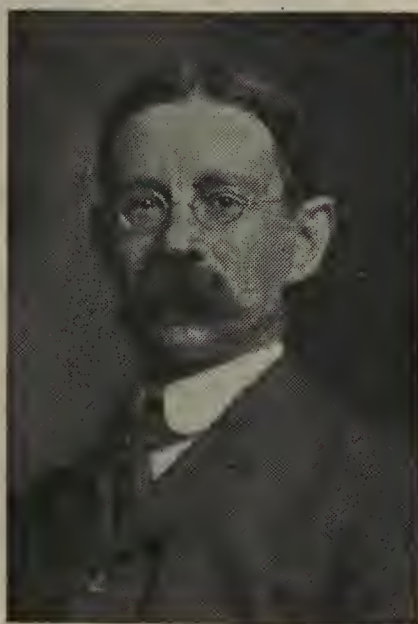
1. The purchase and distribution of 1000 apple and plum trees of hardy productive varieties, bearing fruit of good quality, size and appearance. The members will have to pay 10 cents for each tree and the society will pay the balance of cost and freight. Not more than 10 trees to be allowed to one member.

2. The distribution of 100 apple trees, "Transparente de Croncels" and 100 pear

trees "Beurre Baltet pere" already ordered in France, one tree of each to each subscriber paying half cost, 20 cents.

3. Orchard Contests—The jury who will examine the orchards of the competitors will award the prizes to the owners of the best kept orchards of vigorous trees bearing largest crops of good clean fruit. Orchards where scales and black knot exist will lose half their points on that account.

4. Prizes will be offered for the best managed wood lots where firewood and timber, needed by the past and present owners, have been cut judiciously for over a century and the richness of the forest maintained by new growth.



Mr. J. Horace McFarland

Arrangements were made with Mr. McFarland of Harrisburg, Pa., to speak at meetings of five Horticultural societies in Ontario. The following are the places and dates: St. Catharines, April 27; Hamilton, April 28; Cobourg, April 29; Toronto, April 30; Perth, May 1.

Nova Scotia

Eunice Watts, Waterville

When it was reported that a large consignment of Australian apples was on its way to England, Nova Scotians rushed the last of their fruit to the Old Country markets, so that now the warehouses are nearly empty. During the first week in March Berwick exported 1,832 barrels of apples. The winter shipments from Aylesford have ranged from 1,000 to 1,500 barrels weekly, while Auburn, two miles distant, has been loading two cars every week, or about 400 to 500 barrels.

Growers are gradually learning that it does not pay to ship a poor grade of fruit. Good Baldwins have realized \$1 to \$1.50; Golden Russets, \$2.50 to \$3 nett; Fallawater, \$2; Stark, \$1.75 to \$2.

Cranberries have gone long ago. Like the apples they began to sell at big prices, but dropped from \$7.00 to \$5.00 a barrel as the season advanced.

The wages of men in warehouses range

from \$1.00 to \$1.25 per day. Women sorters earn 75 cents to \$1.00.

A quantity of potatoes has been shipped to Havana and neighboring markets; latterly the price has risen from 40 cents to 42 cents a bushel to growers.

There is a big demand for apple trees, especially those of the Stark and Duchess variety. Local nurserymen are selling good No. 1 stock for \$20 a hundred.

Root grafting and pruning have occupied the time during the last month, but there is still much of the latter to be done, especially on stone-fruit trees where black knot is very plentiful.

During the bright days of March, the bees were enticed from their hives, but April came in with snowstorms and sleighing, snow and rain alternating almost every day since; otherwise it would have been possible to plant such hardy seeds as broad beans, peas and sweet peas, the frost being out of the ground, except in sheltered places. Tomatoes and other seedlings are doing well in boxes.

After the rains in the middle of March, the tulips made their appearance, and were soon followed by the daffodils, hyacinths, and day-lilies. Insects are beginning to fly, and robins have come back. A number of wild ducks and geese have flown over. Mayflowers and pussy-willows are expanding their buds, and the indications are that spring is here.

Annapolis Valley

G. H. Vroom, Middleton

Fruit trees and bushes of all kinds have come through the winter in Nova Scotia in good condition, and look healthy and strong. No signs of winter killing are to be seen, and the trees are well set with blossom buds in orchards that are well cared for, and properly pruned. Strawberry plants have suffered from the many thaws, and only well covered plots are in good condition. Present indications are in favor of a good bloom on all trees and bushes.

Caterpillar eggs are not as plentiful as last season. The brown-tail moth is still to be found in some sections, but a vigorous campaign is now going on in all infested districts, and the nests are being gathered and destroyed. The bounty of 10 cents a nest which is being paid by the local government, will probably wipe out the pest. At any rate nothing will be left undone to stamp it out.

Prince Edward Island

Rev. Dr. Burke, Alberton

It is to be hoped that the very mild and changeable winter now, "lingering in the lap of spring," has not in any wise affected adversely the orchard trees, by starting the circulation of sap out of season. So far we have learned of no such mishap, but the day of reckoning is hardly here yet. We have had no snow to break down trees and no opportunity for mice to girdle; that at least can be put down to profit account.

Since the winter meetings, there has been considerable activity in the purchase of orchard stock. A movement was inaugurated to buy cooperatively, the association here sending out a circular to all the farmers, with some show of success. A committee from the association recommended that they could guarantee the growing of such sorts here as Yellow Transparent, Duchess, Red Astrachan, Pewaukee, Baxter, Alexander, Wolf River, Wealthy, Inkerman, Stark, Ben Davis. They described the different varieties recommended, told how they had succeeded and unhesitatingly affirmed that

there was money in their production here. The names to the committee were ones well recognized as those of practical and trustworthy fruitmen. They were, John Johnstone, John A. Annear, Franklyn Bovyer and A. E. Dewar. The circular stated that the P. E. I. Fruit Growers' Association, through its secretary, would undertake to secure prime stock in lots of not less than hundreds, at a price not to exceed 20 cents laid down on the farm. There should be quite a movement in trees this season as a result of this propaganda.

The Fruit Growers' Association has done more than this for the fruit industry this spring. It has been soliciting offers of small fruits—strawberries, raspberries, currants and gooseberries, with a view to the establishment at Charlottetown of a branch of the Winslow preserving works of Montreal. Quite an amount of small fruits are grown here; indeed, this is an ideal strawberry land, and, as well as the great profit in the sale of fresh fruit from our strawberry-beds when the season is bare elsewhere, it will be a good thing to be able to sell at paying prices the stock unfit for basketting and the table.

Toronto

The members of the Toronto Horticultural Society have recently been visiting some of the largest greenhouses and private conservatories, in the vicinity of Toronto. This has proven a popular move, and the members turned out in large numbers.

The places visited recently were The Steele-Briggs Seed Co., J. H. Dunlop, Sir Henry M. Pellatt, and the florists in Brampton, which included the Dale estate, R. Jennings and W. Fendley.

At the reception given to the members by Sir Henry M. Pellatt and Lady Pellatt, on March 28th, at their conservatories, over 150 members accepted the invitation. It was an educational treat for the members to see the many specimens that have been so well grown by the gardener, Mr. McVittie. After the conservatories had been visited, luncheon was served, at which Lady Pellatt presided.

The excursion to Brampton on April 11th was a splendid success, two special cars being almost filled. The flowers were at their best, the date being just one week before Easter.

The membership of the Toronto Society is now greater than any time in its history. It will not be long in reaching the 300 mark.

Montreal

E. H. Wartman, Dominion Fruit Inspector

Once more I am at work at Montreal after an absence of two and a half months in Colborne, Ont., district. This village can boast of many expert apple packers. The fruit houses, capable of holding 100,000 barrels for re-packing are well worth looking into by those who contemplate building frost proof apple houses. These houses have been well tried in weather ranging down to 25 degrees F. last winter, and the apples were never known to keep better. As many as 140 cars of apples were shipped from this village in one month which, for quantities, few other places can boast of in Canada. The 100,000 barrels re-packed here graded about 50 per cent. No. 1 quality; the other 50 per cent. were mostly exported and the No. 3 quality returned little or nothing in many cases.

Odds and ends of apples from all over

Canada have flooded the Montreal market. About 1,000 barrels of apples were offered by Montreal Fruit Auction Co., on April 13th, which is the largest quantity I have ever seen at this late date. The prices were very low, especially No. 2 and No. 3 grades. In a large city like Montreal, the most fastidious can find fruit to suit their taste. We have peaches and pears from South Africa, strawberries from South Carolina, tomatoes and oranges from California, hot-house grapes from England, all in good order, and inviting.

Apples, of course, are the cheapest fruit in the market, the auction price for No. 3 quality being 75 cents to \$1.00 a barrel. Still, if one wants a strictly No. 1 barrel of the old reliable Spy he will have to pay \$4.50 for them, and there is no grumbling.

Manitoba

Wm. J. Cunningham, Dauphin

There is not much fruit grown in this section. One great drawback is the large quantities of inferior nursery stock that Canadian and American firms are shipping in here. A lot of inferior stuff also comes from Brandon. There is not an apple, plum or cherry tree to be seen in Dauphin.

There is land for a distance of fifty miles around here that would be fine for fruit growing. The land is well watered and sheltered, but the ordinary class of trees do not do very well. I have grown some Russian varieties with fairly good success, and the people promise that as soon as they see it will do well, they will buy the stock.

Fruit Crop Forecast

The present appearance of most kinds of fruit trees and bushes, indicate that they have come through the winter in fine condition. While still early to make predictions regarding the coming season's crop, all reports from growers are optimistic. For each issue of THE CANADIAN HORTICULTURIST, growers in all fruit districts from the Atlantic to the Pacific are requested to contribute brief notes on fruit crop conditions and prospects.

L'ISLET COUNTY, QUE.

Village des Aulnaies.—Apple, plum, pear and cherry trees have not suffered. Fruit buds on apple and cherry trees are abundant and promising. The present indications of bloom on plum and pear trees are not so encouraging. Small fruits have come through the winter in good condition.—Auguste Dupuis.

KING'S COUNTY, N.S.

Kentville.—Fruit trees and bushes have come through in grand shape and present indications point to a large bloom and no winter killing. An early spring is looked for. It is too early to say anything about insect pests. We have no brown tail moth in this county, and spraying is universal. I think orchardists will be well rewarded this season.—M. G. DeWolfe.

Port Williams.—Fruit trees have come through the winter all right, and very few have been killed. A good supply of buds already, indicates a big crop of apples for 1908.—John Donaldson.

YORK COUNTY, N.B.

Fredericton.—The prospects for a good show of bloom on fruit trees are good. Bush fruits are coming through in good shape. There is very little evidence of damage by mice. Strawberry plants in exposed places

or poorly mulched will show much loss but were well mulched, they are looking very encouraging.—J. C. Gilman.

QUEEN'S COUNTY, P.E.I.

Long River.—Trees and bushes wintered well and now look fresh, but it is yet too early to say anything about the bloom. We look for a full crop this year.—John Johnston.

WENTWORTH COUNTY, ONT.

Winona.—Everything has come through in fine shape and only a few of the more tender varieties of peaches have been hurt. They are not damaged much and the amount of buds indicate a good crop. All kinds of plums and pears are in good shape, and a heavy crop is looked for.—J. W. Smith & Sons.

LINCOLN COUNTY, ONT.

Grimsby.—Fruit trees and vines are looking very promising.—A. H. Pettit.

OXFORD COUNTY, ONT.

Ingersoll.—Fruit trees and bushes look very promising and should get no setback from now on. If sprayed carefully, big crops will be in order.—J. C. Harris.

ESSEX COUNTY, ONT.

Leamington.—All varieties of fruit promise a big crop. The only exception is in peaches. Those that are tender have many dead buds but enough are left to ensure a good crop. Most varieties promise a full crop.—J. L. Hilborn.

KENT COUNTY, ONT.

Chatham.—Peaches show plenty of bloom; also apples and pears. Strawberries and raspberries give full promise at present.—Milton Bachus.

BRUCE COUNTY, ONT.

Walkerton.—Strawberries wintered well. Raspberry canes are badly broken down by the snow, which will lessen the crop fully one-half. Plum, pear, apple and cherry trees have come through in splendid condition, but it is too early to say anything about the bloom or crop.—A. E. Sherrington.

Giving Good Results

As evidence of the value of Cooper's Spray Fluids, advertised on another page of this issue, the following letters have been received recently by Mr. W. Staley Spark, who is introducing the fluids into Canada:

Mr. G. Bruner, Olinda, Ont., wrote:—"I am mailing you to-day, under separate cover, a specimen of apple wood, on which I sprayed the V1 Fluid, which you sent to me. I used it on April 9th, and have been looking at it a couple of times with other parties, and we are of the opinion that the San Jose scale is dying, or is dead."

E. P. Crowe, Windsor, N. S.—"I note that the fluid played havoc with the tent caterpillar nests on the trees I have gone over. This V1 is certainly a good thing in that particular, if nothing more."

S. Percival, Pender Island, B. C.—"I am pleased to say that I was able to use a little of the spray on a few backward trees and find it most effective in killing aphids eggs, and consequently it must have also easily killed spores of scab or black spot. I have cheerfully told my neighbors about the good results."

I have been much pleased with THE CANADIAN HORTICULTURIST, and received many valuable hints from it.—T. M. Gavanza.

Mr. Vroom on Export Fruit

Ennice Watts, Waterville, N.S.

At the Seed and Fruit Fair held in Berwick, N. S., Mr. G. H. Vroom, Dominion Fruit Inspector, told the audience how the apples were collected for the last Royal Horticultural Show in England, and explained in a satisfactory manner that the medals were not awarded because, as some people had said, the exhibitors were "government pets."

The gold medal from the Crystal Palace went to British Columbia. That was not surprising when we learn that the orchardists of that province begin to select the apples in the spring by thinning the fruit, and later by taking off any foliage which hinders the coloring of the apple. The fruit which was sent to the show in barrels was not so favorably received as that sent in boxes.

Nova Scotia sent to London the best collection of fruit that had ever left the province. The result was that it advertised the fruit and many letters were sent from England requesting boxes of apples for Christmas.

The speaker then discussed the subject of handling apples, and said that the majority of Nova Scotians had yet to learn how to handle fruit carefully. Scarce help, high wages and a short season is no excuse for handling apples roughly, for fresh apples bruise easily and later on every bruise will show. Apples should be handled like eggs; the practice of throwing them into baskets like stones across the sorting bench is too common and should be severely condemned. Apples should be cooled before being put in a cold cellar, and not allowed to stand in a sunny orchard.

Mr. Vroom said that it did not pay to

send No. 3 apples to England unless they are perfect Nonpareils or Golden Russets; all other No. 3's should be sent to the vinegar factory. He had heard on good authority that some dealers take off two shillings from the number ones and put the money on the number threes, so as to make a better looking bill of sale. All the world is looking to England for a market, and unless the Nova Scotians cease to send the culls to the Old Country their fruit industry will decline.

Advice Regarding Spraying

A. McNiell, Chief, Fruit Division, Ottawa.

The orchardist should not imagine that there is any great mystery or difficulty with reference to the making of the Bordeaux mixture, or the use of it after it is made. Almost any of the ordinary directions found in any of the spray calendars will give good results. The material should be freshly made, and should be kept agitated. My advice is to keep the growing tissue of leaf and fruit covered as nearly as may be with the thinnest possible coating of Bordeaux mixture during the growing season. Commence when the leaves have just fairly shown themselves, and spray the first time. The blossoms will soon be out, and then, of course, no spraying should be done until they are fairly well fallen. One should not wait, however, until the blossoms have all fallen before spraying again with the poisoned Bordeaux mixture, as this is the time when the codling moth will be caught. The third spraying should be made 10 or 15 days later, and, to get the best results, spray once more about two weeks later.

It is not necessary that the person doing

the spraying should know all the enemies which he has to combat in order to get 200 per cent. on his money, but the satisfaction of working intelligently, and the extra gain that will come will well repay anyone in making a thorough study of the insect and fungous pests that trouble the orchard. The life history of these pests will suggest the proper time at which any extra spraying may be necessary; but if every farmer should spray, even if he does not know the name of a single insect in the orchard, the operation will pay him well.

Soluble Oil Spraying

Editor, THE CANADIAN HORTICULTURIST: I was glad to see the editorial in the February issue in regard to soluble oil for spraying. The Connecticut growers have taken hold of this remedy and so far feel well satisfied.

I am not prepared to say whether it can be made as cheaply in Canada as in this state, but I am informed that many of the oil wells in Ontario are running to waste, and that crude petroleum may be secured at very low prices. Carbolic acid and rosin oil may be somewhat more expensive in Canada, but the other material should be lower in price. It would be well for the Ontario people to give this formula a trial. I shall be glad to furnish to your readers any information by correspondence that lies within my power.—C. D. Jarvis, Storrs, Conn.

I am greatly pleased with THE CANADIAN HORTICULTURIST, and have gained a great deal of useful information about flower growing from its pages.—Wm. Needham, Chatham, Ont.

Hardy Herbaceous Plants for the Flower Borders

WE have selected a varied collection of Herbaceous Plants with a view of making an Effective Ornamental Border. Our plants are all hardy, bearing bright conspicuous flowers, and will yield a constant succession of bloom for Decorative Purposes. Where any particular effect is desired either as to their height or their arrangement in combination as to density, etc., it would be well to mention these features when sending enquiries which will always be cheerfully answered.

Pæonies**Day Lilies****Leopard's Bane****Perennial Sunflowers**

(Funkia)

(Doronicum)

(Helianthus)

Monkshood**Golden Glow****Red-Hot Pokers****Adam's Needle**

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An extensive collection, carefully prepared, of the hardiest and choicest blooming field-grown Roses, some budded and some on their own roots

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HELDERLEIGH
NURSERIES

E. D. SMITH

WINONA,
ONTARIO

Co-operation in California

D. Johnson, Forest, Ontario

ARRIVING in Southern California about the middle of January, I was delighted to find myself in a climate much like our September, with a temperature from 75 to 80, the air full of the perfume of flowers and songs of birds, and the groves loaded with fruit. One could not but wonder at the energy of the people in transforming the sage brush districts into the great plantations, in the course of 12 or 15 years. In California water is king. By the application of water to the desert wastes, and by co-operative methods of marketing, the planters have been able to make themselves rich.

Irrigating is a study in itself, so that I will not enter into it now, but in passing, would say that I believe it can and will be used with great success in Ontario, especially in the production of small fruit. Almost every year we find the berry growers longing and looking for rain during the ripening period that so often does not come with the result that the crop does not turn out half what it would have produced had there

the coming season we expect to test it here with every hope of success.

The co-operative system of Southern California has had its ups and downs. During the first few years of its existence it had many staggering blows, but it has triumphed over them all and has resulted in making orange and lemon growing a most profitable industry, whereas, only a few years ago, it was one of the most unprofitable. The years 1892 and '93 were perhaps the most disastrous years on record when the small growers struggled individually, each competing one against the other. All shipping at random to the same markets, resulted in account sales in red ink being received in great numbers. In many cases growers not only furnished their entire crop for nothing but were often forced to pay freight charges which the gross sales of the fruit did not cover.

METHODS OF FRUIT EXCHANGE

Various systems of marketing were tried with more or less success until finally the California Fruit Growers' Exchange (head office, Los Angeles), was organized for the purpose of marketing the fruit through one agency. In plain words, this Exchange is a huge commission firm appointed and controlled by the fruit growers themselves

and handles no fruit but that grown or bought by its members.

The first steps of organization is the forming of local associations which own their own packing houses and grade and pack their own fruit under their own brand. The manager of the local association is in constant touch by telephone with the head office, which gives orders when and where to ship the fruit.

The exchange system cuts out all middle men, employ their own salesmen on salary and allot certain districts to each man. Over these salesmen are two general agents with headquarters at Chicago and Omaha where they keep a full bureau of information, through which each local agent receives each day detailed information as to sales of exchange fruit in other markets the previous day. If any local agent finds that he cannot maintain the prices that are being made in other cities he wires the head office in Los Angeles, which immediately diverts shipments from that market until the trade is restored to normal again.

All this seems to be a great expense, but, when we take into consideration the enormous amount of business done, we find that the cost is about half of that charged by an ordinary commission firm. With an even distribution of the fruit, the markets are maintained and each place receives its proper proportion of fruit. The local associations pool their returns every two weeks and pay according to grade.

CO-OPERATION MEANS MONEY

The results of the cooperative system in California is that fruit growing has been made a most profitable business. An orange orchard of 10 acres near Riverside was sold while I was there for \$30,000, or \$3,000 an acre. The crop this year would pay \$8,000 of that. A small grove of 1 1/4 acres netted \$2,920 last year, and another grove of 40 acres netted \$26,000. The secretary of an association near Los Angeles told me that last year the proprietor of a 12-acre strawberry patch received \$24,000 for his crop. This seems hard to believe, but, when we take into consideration their irrigating, fertilizing and marketing systems it is not surprising.

California, like Ontario, has found in its cooperative work much discouragement by growers shipping in and out of the associations, and playing between the exchanges and dealers in the hopes of making better returns for themselves, with the result that some of the local associations have given up, and dealers, taking advantage of this, pay the growers what they like.

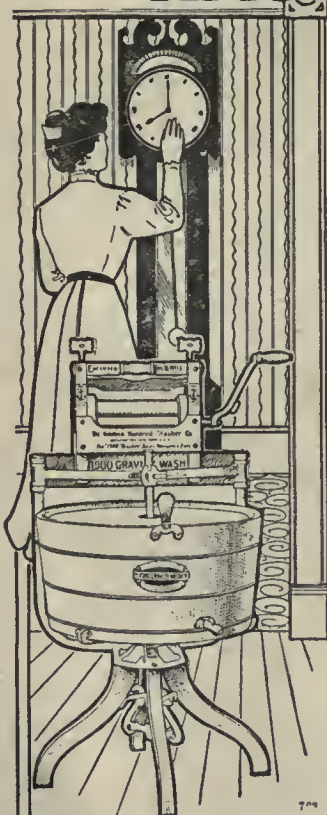
If the California Fruit Growers' Exchange were to withdraw from the trade, the conditions which existed before its organization would prevail, and result in growers becoming discouraged, neglecting their groves, just as the majority of Ontario apple growers do now and declare that there is no money in fruit growing, which would be true if there was no marketing system.

At a meeting of the Toronto branch of the Ontario Vegetable Growers' Association held early in April, Dr. Jas. Fletcher, of Ottawa, gave a valuable talk on "Insect Pests on Vegetable Crops, and How to Combat Them."

An exceptionally well prepared booklet entitled, "The Potato Crop in Canada," has just been published by the Dominion Agricultural Offices of the Potash Syndicate, Temple Buildings, Toronto. To review all its good features would necessitate the publication of the entire article, it is so filled with valuable information. A copy may be had free by writing to the firm.

* The author of this article spent the past winter with fruit growers in California, Oregon and British Columbia, studying their systems of production and marketing. In subsequent issues of THE CANADIAN HORTICULTURIST we hope to publish other pointers gleaned from the lessons learned.

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"1900 GRAVITY" WASHER

the greatest time and labor saving machine yet invented. It will wash the heaviest clothing, blankets or rugs with the same ease and rapidity as it does the finest lingerie or curtains.

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without any advance payment or deposit whatsoever. We pay all the freight ourselves. You may wash with it for 30 days and then if it doesn't do all we claim for it, ship it back to us at our expense. Note, we are the only manufacturers of washing machines on the continent willing to make this great offer. Let us send a "1900 Gravity" Washer to you.

Write to-day for our handsome booklet with half tone illustrations showing the methods of washing in different countries of the world and our own machines in natural colors—sent free on request.

LOOK FOR THIS LABEL ON THE TUB.
None genuine without it.



Address me personally C.H.B. Bach, Manager
The 1900 WASHER CO., 355 Yonge St., TORONTO, CAN.

The above free offer is not good in Toronto and suburbs—special arrangements are made for this district

Bordeaux Injury

R. J. Messenger, Bridgetown, N. S.

I have recently read a bulletin by Prof U. P. Hedrick, of Geneva Experimental Station, on injury to foliage and apples by the Bordeaux mixture. While it would take even a greater authority than Prof. Hedrick to make me believe that Bordeaux is wholly responsible for russetting of apples, and rusting of foliage, still I shall contend that it does little harm to the foliage and am certain that russetting of the apples, rather than being an injury, is rather a benefit, since a smooth-skinned apple, not too badly russetted, has generally a firmer and more crisp quality and keeps better. This is also the opposite of the professor's findings, since he makes the statement that apples russetted do not keep so well as those not affected. I shall not assume, however, the province of criticizing the results of his investigations, but shall confine myself to dealing with his recommendations regarding the strength of the Bordeaux to be used. His investigations proved to his satisfaction that for fungicidal purposes three pounds of bluestone, and three pounds of lime were as effective as four and four in the old formula, for forty gallons of water, and besides being more economical, was not as likely to cause Bordeaux injury.

I was never imbued with the idea that four pounds of bluestone was more than necessary for forty gallons of water, and I have taken considerable interest in watching results. Apples are not totally clear of spot even with thorough spraying with four pounds. However, we give the above, 3-40 strength for the careful consideration of orchardists.

Manure Spreaders

The large crops that are annually taken from the land used by vegetable growers, make it necessary to fertilize the soil in a thorough manner. Many of the growers living in the vicinity of large cities haul manure from the city and spread it over their land. Until recently this work was done with a fork. The great success that general farmers have had with manure spreaders, has led vegetable growers to experiment with them. They have proven a success, doing the work in a thorough and economic manner.

One of the best spreaders now in use by the vegetable growers is the "Success," which is manufactured by The Paris Plough Co., of Paris, Ont. This spreader is equipped with an adjustable spring pulverizing rack, which makes the manure fine or coarse, as desired. All the manure is thrown against the rack, and is thoroughly torn to shreds and pulverized. The tension spring allows sticks, stones and other hard substance to pass through, without injuring the machine in the slightest. The harpoon teeth effectually protect the ends of the beater. These teeth cut the long pieces of straw and grass and do not allow them to wind around the beater or choke it up which would cause it to run hard, as is the case with many of the other makes of spreaders.

Vegetable or fruit growers who are interested in the proper fertilizing of their lands should write to this company for their free illustrated catalogue, which will describe this spreader in detail.

Contributions on any horticultural subject are requested for publication.

CUTWORMS

Corn, Grain, Potatoes, Roots, Cotton, Vegetables and Flowers suffer enormous damage from Cutworms, Eelworms, Ants, Slugs and all kinds of Bugs in the soil. Maybe you don't see them but you pay for them—quit doing so and use VAPORITE.

VAPORITE is the new marvelous English product—a non-poisonous powder. Just sprinkle it onto the soil and plow or dig in as directed before planting or sowing. It acts quickly—the insects are destroyed in a few days so that your ground is free and fertile.

VAPORITE is revolutionising many branches of Agriculture.

VAPORITE Reg.

100 lbs., \$4; 2,000 lbs., \$65.

F.O.B. MONTREAL, P.Q.

Anyway drop us a postcard (2c stamp) and we will send you our illustrated book No. 4. It is a finely-gotten-up factful little Booklet.

It tells you briefly and simply all about VAPORITE, and shows the remarkable extra profits made by practical growers who use VAPORITE. It gives reports from all over the world.

Write us to-day (getting reply in about two weeks.)

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We guarantee our Stock to be strictly first-class and true to name.

AGENTS WANTED.—Pleasant and profitable employment for the Spring and Summer months; whole or part time; outfit free. Write us at once.

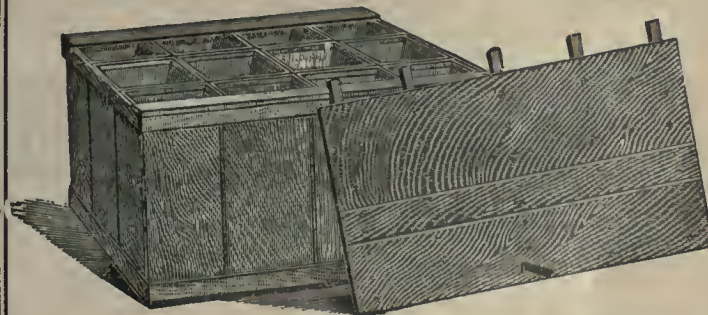
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LIMITED
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Mention the Canadian Horticulturist when writing.

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all kinds of Splint Baskets



Veneer supplied for the protection of trees from mice during winter

FRUIT PACKAGES A SPECIALITY

SEND FOR OUR PRICES

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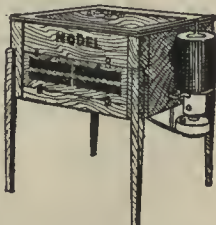
POULTRY DEPT.

Conducted by S. Short, Ottawa

By now the hatching season has sufficiently advanced, that all hatching operations should be under way, or definitely arranged. While the suburbanite may hatch and rear late chickens successfully, it is a different proposition in the city, where grass runs are scarce, and the chicks have to be more or less confined, and artificially fed. At this season, too, there are many who have had under consideration serious ideas of embarking in poultry keeping. If a start is to be made, now is the most favorable time to begin. The first purchases to be made are the incubators. Then decide on the variety or breed of fowl, and order the eggs, or, better still, before buying, inspect the local stocks and see what terms may be got, and how the birds look,

CHAS. A. CYPHERS' Model Incubators and Brooders

On my Model Poultry Farm I now have poultry numbering **80,000** hatched and brooded in my famous Model Incubators and Brooders. Buying your incubators and brooders of a man who knows nothing (or next to nothing) about hatching and raising poultry is running a useless risk. Don't do it.



I not only sell you a Model Incubator or Brooder, but I add to them the valuable experience of years as shown in their construction. Model Incubators show excellent hatches, hatch every hatchable egg. The Model Brooder grow sturdy chicks.

Send your order in to-day, and get in line with the profit getters.

Free catalogue for everyone.

THE MODEL INCUBATOR CO.
196-200 River Street TORONTO, ONT.

being careful to note that not more than ten to twelve females are mated to one male in the heavier breeds, such as the Rocks, Wyandottes, Orpingtons and Brahmas, and not more than fifteen to eighteen of the light breeds, such as Leghorns, Minorcas, and others of that kind. Note also the sprightliness of the fowl, and general healthiness, for healthy parents beget healthy progeny, and likewise sickly dumpy fowl transmit their weakness to their offspring, should any of the eggs from such fowl hatch.

A small room, free from draughts, will do for the incubating chamber, and the brooders may be put out doors, in most localities, at this season. While the chicks are growing the winter buildings may be erected, if that has not already been done.

A fault with many beginners, is that if they are not successful the first season, the breed of fowls kept is blamed, when usually the fault is the breeder's own. Sometimes the start is made so late in the season that the laying stock has not had time to mature to give laying results the following winter. Of course it is discouraging not to get eggs, but not a good reason for discouraging the breed of fowl, and adopting another, simply because a neighbor had good results from another breed. At least two seasons is needed to determine if a breed or strain of fowls kept are poor layers. Hatch early the second season, and give the birds the same treatment as to food and care as some other breeder who is making a success of poultry. It takes several years' experience for the best to make good. If at all convenient, join a poultry association or club, where discussions on seasonable topics are carried on during the winter, and where many valuable ideas may be picked up, and also subscribe to a good poultry magazine. In any event, if the beginner has had no previous experience in poultry keeping, start with a small number of birds and expand and increase as experience may warrant.

Management of Soils

At a meeting of the Niagara Peninsula Fruit Growers' Association, held in Grimsby, Mr. Farnsworth dealt with the management of soils. "Quantity and quality of fruits depends largely on an abundance of moisture in the soil," said Mr. Farnsworth.

The various forms of moisture in the soil and the conditions that control its conservation were mentioned. To receive large quantities of moisture in the form of rains and snow, the soil should be made open and porous. It must be drained well to get rid of surface and surplus moisture. This should be done because plants require warmth and air as well as moisture; an excess of moisture excludes warmth and air. Moisture has two main purposes in the soil as it effects plant growth; namely, it acts as a carrier of plant food and aids in breaking down unavailable plant materials.

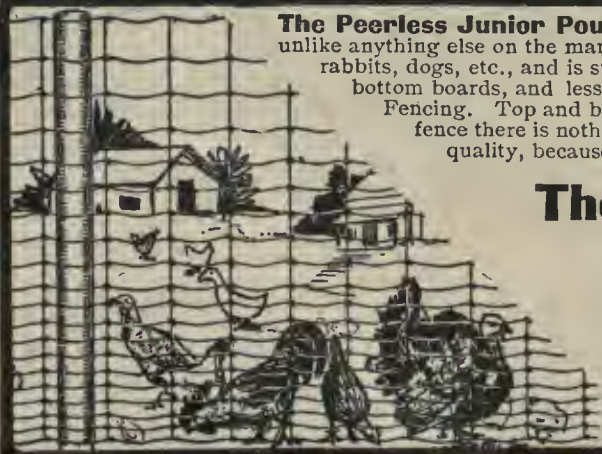
Plowing is a more important operation in soil management than most farmers think. Moisture exists in one form as a film around soil particles. Plowing breaks up the large particles and increases the surfaces that are exposed for attracting moisture. The soil should be deeply plowed if cold subsoil is not too near the surface.

A potent factor in holding moisture in the soil is vegetable matter or humus. For this reason, plenty of vegetable matter should be plowed in in the form of green crops. Cover crops should be grown in orchards. They should be plowed under as early in spring as possible, to prevent loss of moisture through transpiration and assimilation by the crop should it start to grow. On gravelly and sandy soils, vegetable matter will fill the open spaces that occur between the particles in such soils; on heavy soils, it improves the texture by making them more open.

Mr. Farnsworth said also that good tillage plays an important part in controlling moisture. Rolling should be practiced to compact the soil so that water will rise easily by capillary attraction. A light harrow attached behind the roller will produce a shallow surface mulch to prevent the escape of moisture to the air. Tillage also prevents loss of moisture through appropriation and transpiration by weeds. Tillage should be thorough and incessant.

In a discussion on this article, Mr. Farnsworth said that hairy vetch is the best cover crop. It costs about eight cents a pound and about 20 pounds should be sown to the acre. Mr. W. T. Macoun suggested the use of summer vetch instead as it kills down in winter and the grower thereby is not tempted to leave it too late in spring before plowing under. It costs about \$1.50 a bushel and about three-quarters of a bushel should be sown to the acre.

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The Peerless Junior Poultry and Garden Fence is in a class by itself, being unlike anything else on the market. It is woven close enough to turn small chickens, rabbits, dogs, etc., and is strong enough to turn large animals. It requires no top or bottom boards, and less than half the posts required by the ordinary Poultry Fencing. Top and bottom wires are No. 9 hard steel. As a general-purpose fence there is nothing obtainable that will fill the bill so well, and its lasting quality, because of its extra strength, makes it

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Ontario Fruit Growers

Continued from page 109

In 1878, the society started the publishing of THE CANADIAN HORTICULTURIST which was edited by the late D. W. Beadle until 1886 when it, with the office of secretary and treasurer, was passed into the hands of Mr. Woolverton, Grimsby. In this year we assisted in making the great exhibit of Canadian fruits at the Colonial Exhibition in London, in which we did so much to establish our markets in England and to attract the attention of the Old World to Canadian fruits and the Canadian climate. In 1893, at the Columbian World's Fair in Chicago, we showed the world that Ontario was not behind any part of America in the production of fruit. She had the largest exhibit (the season through), scored largest number of points, and rated highest in quality of any exhibit on the grounds. Again at the Pan American in Buffalo in 1900, we maintained our position as second to none in producing all kinds of fruit grown in the temperate zone.

The advancement of fruit growing has not been the sole aim of the association, but the advance of horticulture in all its branches, particularly the improvement of home surroundings, both in towns and country. To this end ornamental trees, shrubs, and plants were sent out to members. As agent of the association, Mr. Thomas Beal, of Lindsay, one of its old and energetic workers, organized numerous horticultural societies throughout the province which became affiliated with the association. These have been the means of changing the aspect of many of our towns and villages and of creating a taste for the beautiful which was unknown before. Great changes have taken place in the sur-

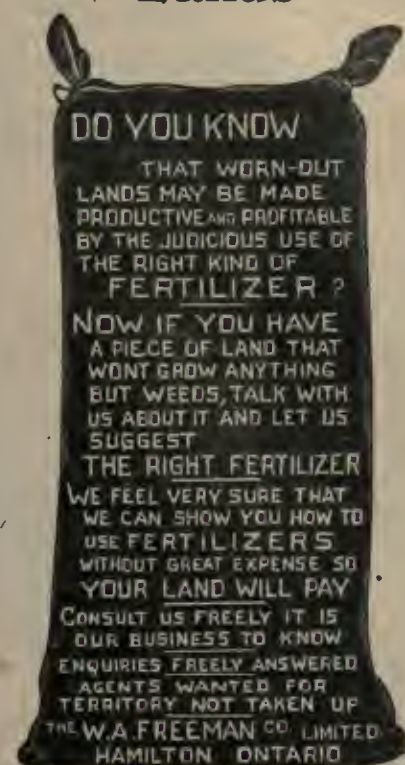
rounding of Farmers' homes, especially those of fruit growers.

Another great work the association has been instrumental in accomplishing is the establishing of experimental stations for testing fruits. Thousands of dollars have been wasted yearly in the past by farmers and others in planting fruits that were unfit for market or not adapted to the locality where they were planted. Early settlers and planters had no knowledge of varieties and depended largely on the advice of nurserymen and tree agents and took any variety that the latter recommended. The consequence was that the country was flooded with varieties that were useless.

Canada at one time was the dumping ground of nurseries in the United States, and besides this, unprincipled dealers would buy the surplus stock of our Canadian nurseries, often relabelling it, and selling to farmers under wrong varietal names. Furthermore, settlers were moving farther north, locating in colder sections, and wanted to plant fruit. They thought that the varieties they had grown at the old home, would do equally well there. Many trees were planted that proved too tender for the climate. Scores of new varieties were introduced by nurserymen and dealers as something more valuable than those then grown and sold at extravagant prices to growers in all parts of the province who wanted to get the best. When the trees came into bearing the majority of them proved not as good as the old tried sorts.

Knowing these things, the association began early to advocate the establishing of a station where varieties could be tested before being recommended or sent out. There was scarcely a meeting but that this subject was discussed. Its importance was frequently urged upon the government, but

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GLADIOLUS

America—Exquisite soft lavender pink, beautiful. 15c each

Attraction—Deep rich crimson, with large pure white centre and throat. 25c each

Blanche—Large pure snow white, with but faint marks. 20c each

Blue Jay—The finest blue; a rich deep colour of an indigo shade. 30c each

Cardinal—Perfect flower and spike of the brightest and most intense cardinal scarlet. 20c each

Ceres—Pure white, spotted with purplish rose. 5c each

Contraat—Intense scarlet, large distinct pure white centre, neither tinted or mottled. 30c each

Irene—A fine shade of pink freely flaked bright crimson. 20c each

May—Lovely pure white flower, flaked bright rosy crimson. 5c each

Melrose—White flaked pink, bright crimson centre. 30c each

Octoroon—A beautiful salmon pink. 10c each

Sulphur King—Beautiful clean sulphur yellow. 40c each

Variabilis—The largest spike of any Gladiolus, flowers range in color from dull deep pink flaked blue black, to a solid blue black flaked pink; throat mottled white. 15c each

Colocasia (Caladium) One of the best ornamental foliage plants, either for cultivation in large pots or tubs, or for planting out. First size 20c each; \$2 per doz. Second size, 10c each; \$1.10 per doz. Fancy leaved varieties, 20c each; \$2 per doz. postpaid

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Wm. Falconer—Spike of great length and flowers of enormous size; beautiful clear light pink. 10c each

1 each of above fine collection, 14 for \$2.35

1 each of 9 of above, our choice, for \$1.00

MIXED GLADIOLUS

Bruce's Superb Mixed—This splendid mixture is made up by ourselves and includes Gladiolus magnificent hybrids, Childs, Lemoinei and Grandavensis, 10c each, 10 for 85c, 25 for \$1.75

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Childs Mixed—A very superior mixture. 10 for 60c, 25 for \$1.25, \$4.00 per 100

Choice Mixed—A satisfactory mixture, strong flowering bulbs. 10 for 25c, 25 for 60c, \$2 per 100

Bruce's White and Light Shades—Fine, specially for florists. 10 for 40c, 25 for 85c, \$3.00 per 100

Gladiolus prices are postpaid to Canadian points

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Best Named Double Sorts in following colors: white, pink, red, yellow, crimson; also same colors in **Cactus Varieties**, 20c each, \$2.20 doz. postpaid

Ordinary Mixed Double also **Cactus**, 12c each; \$1.20 per doz. postpaid.

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Established 1850

Cooper's Spray Fluids

The V₁ and V₂ Fluids, produced by Messrs. William Cooper & Nephews, 506-7 Manning Chambers, Toronto, are being well tested throughout the Dominion. The following are a few of the many gentlemen that are giving it a trial: J. W. Smith, Winona, Ont.; W. H. Bunting, St. Catharines, Ont.; Robert Thompson, St. Catharines, Ont.; H. S. Peart, Jordan Harbor, Ont.; Jos. Tweddle, Fruitland, Ont.; M. G. Bruner, Olinda, Ont.; J. L. Hillborn, Leamington, Ont.; Isaac Usher, Queens-
ton, Ont.; W. L. Smith, Whitby, Ont.; A. McKenny, Essex, Ont.; R. J. Messenger, Bridgetown, N. S.; A. Lawrie, Forest, Ont.; Wm. Rickard, Newcastle, Ont.; D. C. McMorris, Nelson, B. C.; W. H. Hayward, Duncans, B. C.; T. A. Brydon, Victoria, B. C.

These are names of men well qualified to make fair trials and let the true results be known. Mr. W. Staley Spark, Messrs. Cooper & Nephews' manager, has left nothing to be desired in the fair way in which he has placed these goods on the market, by giving prominent fruit growers and the fruit growers' associations free samples, and he has not, and does not intend to push the sale of these fluids till the fruit growers themselves are perfectly satisfied that it is an improvement on any spray mixture yet known. This is a fair and honest way of doing business, and we hope that Messrs. Wm. Cooper & Nephews will reap a rich reward. Anyone desiring a booklet describing these fluids and the spraying of fruit trees, can have one free for the asking by writing to William Cooper & Nephews, 506-7 Manning Chambers, Toronto, and mentioning THE CANADIAN HORTICULTURIST.

Apple Shippers

A meeting of the Ontario Apple Shippers' Association was held in Colborne in March. The following resolutions were carried unanimously:

- 1.—That the standard weight of a barrel of apples be reduced to 155 pounds.
- 2.—That the classification of apples be changed from Class No. 5 to Class No. 6.
- 3.—That the Government be asked to amend the Fruit Marks Act by making no definition of a No. 2 apple, leaving it as it was before the amendment of 1906, and that inspection be made at point of shipment.

One question of considerable importance was dealt with very fully, the right of the shipper to order cars, and afterwards route them in any way he thought was in his own interest. One gentleman present made the statement that under the rules of the Railway Commission, every shipper had a right to do so, and if the railways refused to ship according to his instructions, they were liable to a penalty of \$1,000 a car.

Send photographs for publication in THE CANADIAN HORTICULTURIST.

It is well known that seeds should be sown evenly, that the distribution should be uniform. A device that will do this effectively and economically, is the Cahoon Hand Broadcast Seed Sower. Write for information, prices and description, to the Goodell Company, Antrim, N. H., mentioning this paper.

"I must congratulate you on the marked improvement in THE CANADIAN HORTICULTURIST. It is certainly worth reading, and up to date.—R. L. Canning, Earls Court.

The Never-Bark Whiffle-Tree

The most successful Whiffle-Tree ever devised, overcoming the danger of barking or damaging trees, shrubs, vines, etc.

Light and handy; simple of construction; the most careless driver may now be trusted in your orchard with impunity

Indispensable in all up-to-date orchards, vineyards, hop-yards, cornfields, nurseries, etc.

Agents wanted everywhere

Made in 24-inch size and will suit any size tree

For further particulars, prices, etc., apply

M. S. MIDDLETON, O.A.C., Guelph, Ont.

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B. M. RICHARDS, Vernon, B.C.



Red Pots

FLOWER POTS

¶ We have a large stock of all sizes and varieties for spring trade.

¶ Try our pots for growing early tomato plants, etc.

¶ Write for Price List and Catalogue.

The FOSTER POTTERY CO., Limited
Main St. West, Hamilton, Ont.

Mention The Canadian Horticulturist when writing.

OUR SPRING '08 SHIPMENT

OF TREES, SHRUBS, ROSES AND SMALL
===== FRUITS IS THE LARGEST =====

in the history of our business. Our steadily increasing trade proves the growing popularity and demand for STOCK OF THE HIGHEST GRADE. We aim to grow but one class, THE BEST. Our products are the results of long experience and careful supervision.

DO YOU INTEND PLANTING NEXT FALL?

If so, you had better place your order at once, in view of the anticipated heavy demand for all kinds of Trees, Shrubs and Berry Plants.

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Mention the Canadian Horticulturist when writing.

FOR SALE AND WANT ADVERTISEMENTS

Advertisements under this heading inserted at rate of two cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 25 cents, strictly cash in advance.

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Root Maggots

Editor, THE CANADIAN HORTICULTURIST—In the April number of THE CANADIAN HORTICULTURIST, Dr. Fletcher, in an article on root maggots, stated that there is no practical remedy known for this pest. I have been fighting it for the last 10 years or more, and have found two remedies, which I will give for the benefit of your many readers.

About seven years ago I read an article by Miss Ormerod of England, in which it was said that deep planting of onions was a cure for maggots. As I planted quite a lot of multipliers, I tried different depths, and found that deep-planted ones were worse than those on the surface. This gave me the idea of planting on ridges.

The following two years I ridged all my ground, and put the sets on top. At the first hoeing, I pulled the soil away from the bulb, and never saw the sign of a maggot. The next year I planted in the level again, and fully two-thirds were attacked by maggots. I pulled the soil away from them, clean to the roots and, as soon as the bulb got good and dry, the maggots disappeared from the onion patch, only to attack my cabbages and cauliflowers. They attacked these even more vigorously, sometimes making a clean sweep of the rows, and I thought that I would have to quit early growing.

I tried everything that I could hear of, until one of my neighbors told me that he knew of an old man who always put a match in with the plants when he put them in the ground. As I could not procure any

of the old time sulphur matches, I made up my mind to try the sulphur alone, and was rewarded for my trouble by not a single cabbage or cauliflower, around which sulphur was placed, being attacked. Put the sulphur close to the stem. One teaspoonful is enough for one hundred plants.—Edward Lane, Galt, Ont.

King Edward Strawberry

Editor, THE CANADIAN HORTICULTURIST—In an article in THE CANADIAN HORTICULTURIST, Mr. Stevenson of Guelph, said that he got King Edward strawberry from a Mr. Miller of Ohio, who claims to be the originator. If Mr. Stevenson had taken second thought, he would have seen that an American citizen would not give the name of King Edward to anything that is good.

This variety was originated in Galt, and I gave it the name of King Edward, shortly after the King was crowned. It deserves all that Mr. Stevenson says about it, and a little more. I consider it an ideal one to use for pollinating imperfect-flowered varieties. It is ahead of the Williams, which originated near Brantford.—Edward Lane, Galt, Ont.

Send photographs for publication in THE CANADIAN HORTICULTURIST.

The following letter is an indication of the general interest that is being taken in the new spray fluids: "W. S. Spark, Manager, Messrs. Wm. Cooper & Nephews, Manning Chambers, Toronto.—We find that we shall want more V2 Fluid than you have ordered for us, so that, in addition to the 300 gallons, which we presume is now en route, we would ask you to cable your people to ship us immediately, via C.P.R., 400 one-gallon drums, and 20 five-gallon drums, and have it rushed through by wire tracer as quickly as possible.—(Signed), E. G. Prior & Co., Ltd., Victoria, B.C."

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J. H. WISMER, Nurseryman. Port Elgin, Ontario



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The Canadian Horticulturist

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No. 6

Irrigation in British Columbia

A. E. Meighen, Irrigation Engineer, Kamloops, British Columbia.

THE word "irrigation" ordinarily conveys to the mind the idea of an elaborate system of ditches—main canal, laterals with the accompanying sluices—water gates and measuring devices. As a matter of fact, irrigation is practiced where none of these works exist. All persons in all countries have brought the principle of irrigation into practice. All that is required is a favorite bed of flowers or patch of vegetables, a continued spell of dry weather, the watering can or the garden hose and we have irrigation pure and simple. Irrigation then is an aid to nature, a supplying of the need where she fails; a thorough grasp of this idea is of the utmost importance to the farmer when he comes to apply water to his land by the methods now employed in practical irrigation.

The only difference between this simple form of irrigation and that employed on large tracts in the dry belts is a matter of degree and methods. Given a large tract of arid land, the simple methods of the watering can and garden hose are out of the question. It then becomes a problem for the engineer. He either taps a supply distant from the land to be served and by the aid of gravity conveys it in a ditch to the spot, or, if a supply is at hand, but on a lower elevation than the land (a condition which is generally present in British Columbia), he installs a pumping plant and raises the water to the necessary height. The supply thus being available, he proceeds to lay out such a distributing system as the different conditions indicate as the wisest, his aim being to serve the land in the easiest, cheapest and most certain manner possible.

WHEN IRRIGATION IS NEEDED

In a general way it is considered that in regions where the average annual of rainfall is twenty or less inches, irrigation becomes necessary for the production of full crops. Of course, it is true that the necessity of irrigation depends on the distribution of the rainfall over the year. Thus it occurs that in some localities on the Pacific coast the rainfall is considerably over twenty in-

ches, but, as it occurs mostly in the winter, irrigation becomes necessary, while in other localities with a much smaller rainfall, but occurring during the growing months, irrigation is unnecessary.

Taking twenty inches as the minimum annual rainfall required to produce full crops, the extent of aridity on the North American continent is much greater than most people imagine, comprising in the United States two-fifths of the entire land area. In Mexico, the proportion of arid lands to the total land

One of the Best

THE CANADIAN HORTICULTURIST is one of the best edited, brightest, and most interesting of the many magazines and agricultural and horticultural papers which weekly and monthly come to my desk. May success ever be with you.—F. H. Reed, District Representative of Ontario Department of Agriculture, Lindsay.

surface, is probably equal to that in the United States, while in Canada the entire interior of British Columbia, from the Coast range to the Selkirks, and great tracts of Alberta and Saskatchewan, may be also classed as arid, or semi-arid, where, if irrigation is not absolutely necessary in all cases, it would be in the nature of an insurance against loss of crops from drought.

The fact is that the extent of aridity in North America is so great that it is estimated that there is only water enough available to supply 10 per cent. of the arid lands; for instance, in the state of California, with 100,000,000 acres of arid land, there is water enough for only 17,000,000 acres.

The area of land now under irrigation is enormous when we consider how recent is the practice and this area is being added to greatly every year. Today, there are under irrigation in India, 33,000,000 acres, in Egypt, 6,000,000 acres, in Italy, 4,700,000 acres, in Spain,

2,800,000 acres, in France, 400,000 acres, in the United States, 11,000,000 acres. In our own country, when the C. P. R. project in the Northwest provinces is completed, there will be 3,500,000 acres under water.

ADVANTAGES OF THE NEED

The practice of irrigation is often considered a hardship and the necessity for it a misfortune. A greater mistake could not be made; for, as a matter of fact, the necessity for irrigation and the ability to irrigate make a fortunate combination of circumstances. They imply a warm, dry climate as that of the arid regions. This means that the crops are not liable to destruction by sudden violent storms, by lack of sufficient sunshine or by the failure of the water supply as often results from dependence on nature alone.

THE RETURNS FROM IRRIGATION

Obviously the returns from irrigation depend largely on the soil and climate which in turn determine the kind and value of the crops that can be produced. In the semi-arid regions irrigation is merely an insurance against failure of crops from lack of rainfall, in regions where the climatic conditions are such that only grain, potatoes, and so forth, can be successfully grown, the returns are not great, while in regions where fruit, deciduous and citrus trees can be grown, the returns from irrigation in crops and the increased value in land are enormous.

The following returns taken from the United States census of 1900 give a good idea of the increase in value of land and water, after an irrigation system has been provided, and the value of crops obtained from irrigated lands. While the average first cost of water, that is, the cost of construction of canal to bring water to the land, was \$7.80 an acre, the average value of water per acre to settlers, after they obtained it, was \$26, an increment of \$18.20, due to the mere fact of having the water available for irrigation. The average value of the land before irrigation was provided, was from \$2 to \$5 an acre, and after an irrigation system was pro-

vided, \$42.53 per acre, and the average value of the products raised was \$14.87. These returns deal with ordinary farm products. In Arizona and California, where valuable citrus crops are grown, the land values increase after irrigation has been provided from \$20 to \$400 and \$500 an acre, and the crop returns average \$250 an acre.

In the interior of British Columbia, in the Thompson valley and in the Okanagan valley, the increase in land values due to irrigation is from \$10 to from \$100 to \$250 an acre, the value of crops \$150 an acre, while the orchards in full bearing are considered worth \$1,500 an acre.

EARLY METHODS IN BRITISH COLUMBIA

Irrigation was first practiced in British Columbia in the early 60's. There are water records in the government of-

ing water nor of the amount that would be required to irrigate their land. They were usually very liberal to themselves, however, with the result that they almost invariably filed on more water than they could put to beneficial use, and, in many cases, their filings constituted more water than the entire flow of the creek during the irrigation period.

TROUBLE BETWEEN SETTLERS

New settlers came in and settled higher up the creeks. They also filed on water for their lands, built ditches and diverted water. In nearly every case there has arisen trouble between the old and new appropriator. As soon as the flow of the creek began to get low, and the old claimant near the mouth was not getting all the water he wanted by reason of the new settler diverting a part higher up trouble began. In some cases



Water Passing Over Weir on Jamieson Creek, British Columbia

At Canadian Real Properties Co's headgates—525 second feet.

fices dating back that far. Pioneers coming to the interior took up land near the mouths of the creeks and filed on the waters of the creeks to irrigate their lands. Fodder crops were the only crops raised. These pioneers almost without exception took up stock raising. Their herds grazed over the public range during the spring, summer and late fall, and, in fact, in many years, during the entire twelve months, and hay was grown to supplement the feed on the range in the hard winters.

Many of these old settlers had no idea of the standards of measurement of flow-

he took the law into his own hands and tore out his neighbor's dam and destroyed his headgates. To-day, all over the interior, there are water cases before the courts arising out of the confusion due to lack of proper government supervision over the appropriations of water from the creeks.

It is expected, however, that irrigation will soon be put on a sounder basis in British Columbia. The provincial government is holding a searching investigation into the subject with a view to amending the water clauses act to meet present conditions.

Fall Bearing Strawberries

E. B. Stevenson, Guelph

For some time there has been a good deal said about certain varieties that were claimed to bear a good crop in the fall season, and it was said they were as good as the spring varieties and were more profitable. The most lauded of these fall bearers is one called "Pan-American," a sport of the Bismark. Three years ago I sent for plants of the Pan-American. I have been growing it since. As the result of my experience, I would not advise anyone to go into the growing of the so-called fall-bearing strawberries for profit.

I have found that any of the old sorts will bear berries in the fall under certain conditions, which are: First, if the spring is cold and wet, and followed by a season of drought, then in the latter part of August or early September, if we have a good deal of rain and heat, you can look out for fall strawberries. But, what kind are they? Just like any berry or fruit out of its season. They have not the aroma or flavor of the spring grown strawberry. Sometimes they are of fair size, but they are sour or insipid, and you do not want to eat more than two or three.

Cultivating Currants

Wm. Fleming, Owen Sound, Ont.

For success with currants have the ground perfectly free from grass and weeds, and keep it clean. This will require cultivating about once every week or ten days according to the weather. The ground should never be cultivated when too wet or too damp.

This cultivation must be kept up, if a perfect state of good results are to be obtained; for once let the grass and the weeds get the control, the chances are ten to one that the plantation is ruined. When the grass and weeds become masters, there is no probability that the plantation can be properly restored to a first-class condition. The aim should be to destroy the weeds before they come above ground.

Larvae which live or feed in webs, like the tent-caterpillar and fall web-worm, may be burned with a torch.

Small fruit growers, who have tested the Loganberry, in Canada, are requested to tell their experience with it in a letter for publication in THE CANADIAN HORTICULTURIST.

If you have fillers that you plan to move next year, girdle the trees this month. This will cause them to bear extra heavy crops, and it will not matter whether the girdling injures the trees or not.

Blight on Pear and Apple

W. T. Macoun, Central Experimental Farm, Ottawa

SPRAYING with Bordeaux has no apparent effect upon blight, but it is believed that lime and sulphur, forming a coating over the bark prevents to some extent the entrance of the blight germ. The bacillus or germ of the pear or fire blight finds its way into the tree at the tenderest and least protected points, and it is believed by those who have made a careful study of it that practically all the infection is done by insects or birds, and that the disease is not carried to any extent by wind. Insects carrying infection travel to the tips of succulent shoots, and the germs find entrance through the buds at the axils of leaves, and at any point where the bark is broken. The chief sources of infection of bearing trees is through the flowers to which come insects bearing the disease.

The blight is usually first noticed in the spring on bearing trees when flowers and flower clusters which have been blighted wither and do not set fruit. Soon the fruit spurs are noticeably affected, and also the new wood. The disease starting at the tip of the shoots usually runs down, although it will run in every direction, sometimes passing on to the main branches and to the trunk of the tree. The disease varies in the way it spreads. Sometimes only the flowers are affected or the fruit spurs or smaller twigs, or patches about a place on the branches or trunk that have some physiological injury. The germs are found in a gummy substance or exudation, and this is carried by the insects from one flower or tree to another. These bacteria increase very rapidly by division, and once the tree is infected the disease may soon spread over a large area.

The best method of controlling this blight is by cutting out the diseased parts. To do this thoroughly it is necessary to begin in the winter, going over the orchard several times to be sure that all the diseased wood has been observed. This should be followed up in the spring and summer, and everything showing a sign of the blight should be cut out not less than six inches below the affected part or into healthy wood. Where possible it is wise to cut as much as a foot below where there is evidence of the disease. It has been proved by experiment that infection is carried on the knife or saw, especially in summer, hence after each branch is cut the knife should be disinfected. The disinfectant recommended by Prof. M. B. Waite, who has given this disease careful study and who is confident that it can be controlled by taking proper care in pruning and doing the work systematically and thoroughly,

is "a solution of corrosive sublimate in water, one part to one thousand." Tablets of convenient size for making the solution may be obtained from the drug store. A sponge is carried with which to apply the disinfectant. Corrosive sublimate is a deadly poison, hence should be labelled "Poison." It should not be carried in a metal receptacle. The objection to a carbolic acid solution in water is that it must be made very strong to be effective.

A systematic effort is now being made in California to stamp out this disease, which has recently gained a foothold there. The method adopted is to cut out affected branches and burn them. Where the body of the tree is affected it is rooted out and burned. Fruit-

"entertained" expresses the need more fully, in such a way as to hold them through good and evil report, and picking while the season lasts. Picking should be done with care and neatness. The berries must be pinched off with a short stem without bruising the fruit and the soft and smallest berries discarded or left on the vines. The boxes should be filled a little over level to allow for settling and packing; they must be full or nearly so on reaching destination. Pickers should not be allowed to take more than eight boxes to the patch at one time, so that the berries may come to the packing house fresh and cool. In order to carry out the outlined program it is sometimes necessary to pay a small premium to pickers who comply with the ideal requirements.

"Packages, both small and large, should be clean, neat, and attractive



A Field of Strawberries that Yielded Big Returns Last Season
Farm of Mr. Robt. C. Shook, Clarkson, Ont.

growers in the pear districts of Canada should combine in an endeavor to control the blight. Individual efforts are of little avail if neighboring orchards are neglected.

Harvesting Strawberries

This account of the methods practised by Mr. W. F. W. Fisher, of Burlington, Ontario, one of our most successful strawberry growers, is well worth careful reading: "The cultivation of strawberries on a large scale," writes Mr. Fisher, "involves a great amount of labor, expense and care through all its various phases—preparation of land, planting, keeping clean, protecting from frost, and so forth; but the climax of interest is reached when it comes to harvesting the crop. Having secured the necessary pickers (which sounds easy), they must be housed and—"treated" I was about to say—but

as possible. The packer should dump a few boxes occasionally from each picker to see the contents, and should see that berries and crates are kept in the shade until time for shipment.

"The most satisfactory market is at the home railway station or cannery. Distributing the crop can be done much more intelligently by large dealers than by individual growers, and the area of distribution be thereby largely increased. Varieties that are firm should be selected for long distance shipping, and in no case should berries of different varieties be packed in the same crate. The size of our boxes is fixed by law, and the popular crate appears to be one holding from twenty-four to thirty-six quarts. The large returnable crate is ng less used year by year."

There is no better mulch than thorough cultivation.

Planting and Caring for Dahlias

Max Moineau, Toronto

EXCEPT in heavy clay, dahlias will grow almost anywhere, but a sunny locality, with rich, mellow soil, that will grow potatoes, will give the best results. Fertilization should be done in the fall. Use well-rotted cow manure, and work it in thoroughly, turning the earth over many times before freezing weather, and again in the spring, before planting.

In Canada, planting time should never be earlier than May 20th, nor later than June 20th. Do not plant in soil that is wet or sour. If soil is heavy and soggy, add a goodly proportion of sand and air-slacked lime. This will lighten and sweeten it. Never plant when soil is wet, or your tubers may rot.

Do not plant when the soil is cold. Wait until the sun has warmed it. At an early period put your hand down into the soil, and feel how cold it is, then later test it in the same way for a higher temperature. A cold soil retards, while a warm soil hastens vegetation. Dahlias grow rapidly. You will not lose time by waiting.

If your dahlia bed was not fertilized in the fall, use only well rotted manure sparingly, as early in the spring as possible. One good method is to dig out the soil to the depth of ten inches, fill in with two inches of well-rotted manure, and stamp it down, then cover with an inch of soil well packed, upon which place your tuber; then cover but be careful not to over-fertilize at this period.

A WARM EXPOSURE NEEDED

Dahlias revel in the warm sunshine. If possible plant them so that they will be exposed to sunshine all day long. But if you have a small town or city lot with close board fences, good results can be obtained by planting on the northern or eastern sides, twenty-four inches from the fence. I have grown dahlias on all sides of my lot, and find the eastern and northern localities the best.

Remember, that the soil in the beds that are near the fence, should be much lighter than in the open, because the fence shadows it at one time of the day, while the heat reflecting from the fence at another time of the day will, if the soil is heavy, bake it to a crust. This baking, or incrustation, interferes considerably with what may be termed soil atmosphere, and necessitates a double amount of cultivation. My rule is that wherever there is much shadow, use the lighter soil. In the open sunlight, a mellow, medium heavy soil is preferable. A light soil requires more fertilizing

than a heavy, while, after planting, a heavy soil requires more cultivation than a light.

SELECTING DAHLIAS

There are nine distinct classes of dahlias, namely, show, fancy, decorative, cactus, single, ponpon, colorette, peony-flowering and scented—the latter being the newest thing on record. In each class, there are many varieties with individual characteristics. The best time to select a dahlia is when it is in bloom; therefore, visit dahlia farms, make a record of the varieties you best like, and send in your orders early in the spring, dealing always with reliable people. See that each tuber has a bud sprouted before planting, or you will be disappointed, when, after long anticipation, no plant appears. Bear in mind that there are blind tubers, and these produce nothing. Sometimes you may receive two or three tubers in a cluster, with but one eye appearing. This is a strong root, and should not be separated. Plant it as you receive it, and anticipate a better bush and bloom because of the cluster.

HOW TO PLANT

The ideal method of planting a dahlia tuber is well worth considering. Dig a hole eight inches deep. Place the tubers in the bottom horizontally, with the eye uppermost, then cover with about two inches of earth. As the sprout develops, fill in the soil until the level is reached.

I do not approve of pinching out the centre of the sprout, as some advise, but I do advocate staking. I would recommend setting the stake before planting. There will then be no danger of driving it through the tuber. Always place the eye, or bud end of the tuber, directly opposite the stake, and about four inches from it. Attach the label firmly to the stake the moment you remove it from the tuber. A dahlia without a name is of no interest, and while handling and planting, tabulating should be very carefully done.

When the plant is eighteen or twenty inches high, tie it to the stake with a strip of strong cloth, about an inch, or an inch and a half wide, being careful not to pull the stem from its natural direction, and keep elevating the bandage as the plant develops. I paint my stakes green, and use green-colored cloth for tying. This relieves the unsightliness of staking. Stakes should be at least three feet above ground, and, in some cases, two feet longer. Never plant closer than two and a half feet between each hill, and four feet between each row.

Do not water. Nature will do that in the best way possible. Artificial watering produces a rank growth of stalk at the expense of the bloom, with a tuber that will shrivel up and, perhaps, rot during the dormant period. Therefore, let me reiterate, *do not water*. If the season becomes excessively hot and dry, an occasional *soaking* may be advisable, but using the hose every evening is the greatest mistake you can possibly make, since it proves detrimental to the bloom.

Cultivation is the proper thing, and let me state just here, that any one who has an aversion to the use of the hoe, should never attempt to grow dahlias. Keeping a crust from forming on the soil about the stalk is absolutely imperative. The soil should be broken and mellowed, all weeds and suckers carefully removed, and not more than one shoot allowed to develop from a hill.

Your lawn clippings will make an excellent grass mulch, which will prevent the soil from baking and drying out. Hoeing twice a week, will improve the soil atmosphere. Always replace the mulch after hoeing. Fine, strawless, stable manure, or street sweepings, will also make a good mulch, but do not use manure until after the buds begin to form, nor cultivate so deeply as before. Buds, as a rule, begin to show when the plant is from eighteen to twenty inches high, and will be in bloom when the plant is about thirty inches high.

Later in the season, should the flowers diminish in size, use liquid manure once or twice a week, or a top dressing of fine bone meal, four parts, to nitrate of soda, one part, spread broadcast over the hill, and cover with a light sprinkling of soil, always replacing the mulch. A better bloom will be the result. If there is any sign of mildew, remove the mulch for a while, to let the earth dry out a little.

Disbudding throughout the bush and cutting back the lower branches will also enhance the bloom. I always trim out the lower flower shoots, as they never do well, and the strength expended upon them will be saved for the better part of the plant. The removal of all dead and faded flowers is necessary for the better appearance of the plant, and its further sustenance.

For decorative purposes, never cut a bloom in the heat of mid-day. The flowers are usually in a half-wilted condition then, and cannot be easily revived. Early in the evening is the best time for cutting, as it is cooler, and the flowers have a chance to harden during the night.

The Gloxinia and its Culture

F. G. Keyes, Ottawa

FEW flowers equal gloxinias for conservatory decorations during the summer months. Their rare beauty, and the ease with which they

This takes a little time, but it pays, if the best flowers are desired.

GROWING FROM SEED

Some difficulty is frequently experi-



A Well-grown Lot of Gloxinias and other Greenhouse Plants

In conservatory of Mr. P. G. Keyes, Ottawa

can be grown, should make them even more popular than they are. They can be grown from seed, or from the leaves of the plant, or may be increased by cuttings taken from the bulbs after these have started into growth. Usually many more shoots appear than should be allowed to grow. All but one of these must be cut off close to the surface of the bulb, if the best results are to be obtained. These surplus shoots, if planted in small pots, in light soil, and kept shaded and fairly moist (not too wet) will soon form small bulbs, which, if kept growing until autumn, may then be dried off, and potted for blooming the following season.

DO NOT EXPOSE TO SUN

Gloxinias require, at all times, a moist, warm atmosphere. No direct sunlight should be permitted to fall on the plants either while growing or when in bloom.

Five-inch pots are the proper size for ordinary bulbs. It is as well to place them in these at the first potting, and thus save the trouble of repotting after the bulbs have made some growth. The soil should be very light and rich, and the drainage perfect.

WATER WITH CARE

Care should be taken to see that no water is allowed on the foliage, and that the plants are not over-watered. Nothing is more fatal to the gloxinia than over-watering. The plants should be watered individually, not collectively. I usually grow about 100 plants each season, and always before watering make it a point to lift each pot in order to make sure that fresh water is needed.

portions. This can be accomplished, however, by anyone who will take the trouble to purchase two of the ordinary earthen plant saucers, say eight and ten inches in diameter. Place the soil—which should consist of sifted leaf mould, mixed with about one-fifth sand—in the smaller saucer, and scatter the seeds very thinly on the surface. Sift over them a little fine leaf mould, then place the smaller saucer in the larger one, and cover with glass until the seedlings appear.

Water should be given when required, pouring it into the larger saucer. Enough will be absorbed by the saucer containing the soil to supply the proper moisture. Care must be taken at all times, not to disturb the soil, as to do so is to court failure. All fine seeds may be grown successfully in this way.

The gloxinia is rich in color and its color range is wide. From darkest scarlet, it runs through all the reds to palest rose, and from royal purple it shades off into lilac and mauve to purest white. Its great beauty makes it desirable in all conservatories.

enced by amateurs in obtaining plants from seed, owing to its dust-like pro-

Climbing Plants for the Greenhouse

A. Alexander, Hamilton, Ontario

A GREENHOUSE entirely without climbers, loses some of the most charming effects. No matter how small and unpretentious it may be, the judicious use of a few climbing plants, adds a charm which nothing else can supply. Not only so, but they may be made to serve as a natural shade in the summer time, instead

of the usual dirty, smearing of the glass with whiting, or the use of cheese-cloth.

Some persons object to climbers because they are said to harbor and encourage insect life, especially mealy-bug. So they do, if allowed; so do other plants that are not climbers.

To have them in perfection they are



The Effect of Using Climbers in a Small Greenhouse

Streptosolen, Passion Flower, Solanum and other vines in greenhouse of Mr. A. Alexander, Hamilton, Ont.

better planted in a border, which could easily be formed at the sides or back of the house. They do better thus than when planted in pots.

THE CLIMBERS ILLUSTRATED

The illustration shows, though not very clearly, the appearance of a small greenhouse as seen from the door. The house was fifteen feet by twenty, and had a three foot bench on three sides, with a four foot bed in the centre. The climbers were grown in pots until tall enough to come above the benches when planted in the ground beneath. They were then trained up the rafters, until the whole were covered.

The ones used were *Passiflora Pfordtii* and Constance Elliot, the *Manettia bicolor*, *Solanum jasminoides*, *Abutilon megapotamicum* and *Streptosolin Jamesonii*. When all were in full bloom, they formed a sight never to be forgotten.

A plant which makes a fine and easily managed climber is *Plumbago Capensis*. Then there is the bougainvillea. Some of the clematis family can be used. It is necessary to train them carefully at first, giving them each their allotted space, and when done flowering, cutting back a little.

If the house is small, such a plant as the plumbago, with its numerous clusters of light blue flowers, would, in a short time, cover the whole house. The

Abutilon megapotamicum is never seen in catalogues now, but the variety "Eclipse," has the same habit, with

finer foliage. All of these climbers are easily managed, and cannot fail to give great pleasure.

How to Grow Tuberous Begonias

E. F. Collins, Allan Gardens, Toronto

TO grow tuberous begonias for bedding, they should be started about the first of April, in plots, or boxes. Place some well-rotted manure, or leaf mould, in the box, to the depth of two inches, and then slightly cover the same with a mixture of chopped sphagnum, or moss and sand. Place the tubers about three inches apart each way, slightly pressing them into the sand.

Be sure to place them right side up. The crown can always be known by being slightly depressed in the centre, while the bottom is rounded.

After placing the tubers, first cover the crown with the sphagnum and sand, give a good watering, and place in a warm greenhouse or hotbed. If they are darkened by being covered with paper for a couple of weeks it will hasten the rooting process.

In about four weeks they will be found to be just starting into growth, and will have a good bunch of roots in the moss and sand. Then is the time to lift them and carefully pot them into any light sandy soil. For the sizes of the pots one must be guided by the roots attached, placing all the sand and

moss which will cling to the roots, into the pots. Do not press them too firmly, as the roots like to be free. Give a good watering, and place in any bright



A Well-grown Bed of Tuberous Begonias

Planted on June 14th, 1907, on grounds of Parliament Buildings, Toronto, by Mr. F. Barker, gardener. They commenced to bloom one month later and continued until frost. Mr. Barker said:—"Tuberous begonias will stand all the sun they can get but they should not be watered when the sun is on them."

warm position, to harden them to the sun.

If it is intended to use them for bedding, give lots of air on bright warm days, and keep well watered, being careful not to wet the foliage, if they are wilted, as that will cause them to burn. To be safe, it is a good plan to give them a good spraying each evening; then the foliage will be dry by next morning.

Do not plant out too early. The first week in June is soon enough in this vicinity.

After they are established and well-rooted in the bed, give a good mulch of well rotted manure. This will keep the surface cool, and will prevent them from drying out too rapidly during dry weather.

All begonias are moisture-loving plants. The reason for so many failures in their culture, is that water is not given often enough.

All kinds of fruit trees and bushes should be sprayed. Where the plot is not large, get some of your neighbors to co-operate with you in the purchase of a small spraying machine.

Have you a Rockery? What plants are there, and how do you care for them? Embody these points in a letter for publication in THE CANADIAN HORTICULTURIST, and send a photograph, if you have one. By so doing you will help many amateurs, who want to make rock gardens.



A Rockery is a Factor in Gardening that is both Useful and Ornamental

At the residence of Mr. W. A. Wood, Toronto. There were 800 plants--petunias, nasturtiums, caladiums, nicotiana and others--growing last season on this rockery 200 feet long. Photograph kindly furnished by Mr. Chas. Shearer, gardener.

Salads and Garnishes in the Amateur's Garden

A. McMeans, Ontario Agricultural College, Guelph.

Of all the plants employed as foods none are better adapted to the confined limits of the town or city back yard, than salad crops. They are of easy culture, simple preparation for the table, and of valuable dietary qualities.

Salads may be divided into three classes: Piquant or warm, neutral and bitter. The mustards and cresses are typical of the first group. Endive and chicory belong to the third. Lettuce properly belongs to the third group, but when well grown and not too old, it may be included in the neutral. In fact, the better the members of the bitter group are grown, the more delicate the bitter flavor, and the better will they be appreciated.

Salads will do well in any rich, fibrous loam, or good garden soil. For the early spring crop, choose the sunniest, driest place, because the quicker the growth, the more delicate the flavor. For late crops, partially shaded and moist spots should be selected, so that growth may be retarded, and moisture insured naturally. As soon as the ground is dry enough to break easily when dug, the bed may be prepared. Spread a good coating of manure upon the surface, and mix thoroughly with the soil when digging, breaking the clods well; rake the surface finely, and the garden is ready for planting.

LETTUCE

For lettuce, make the drills three-quarters of an inch deep and fifteen inches apart. Sow the seeds at the rate of twenty-five to the foot, and cover one-half inch deep, pressing down the soil firmly on the seeds with the flat side of the hoe or rake. Allow five or six feet of row for each person.

When the plants are about two weeks old, thin to two inches apart. When these commence to crowd, every alternate plant should be removed for use. When they crowd again, repeat the operation.

In order to obtain a supply during the whole season, plantings should be made every two or three weeks. The later sowings should be protected from the sun by a cloth or lattice shade.

MUSTARD

Mustard is sown rather thickly in drills three quarters of an inch deep, and about six inches apart. When about three inches in height, which should be in about four weeks from sowing, it should be thinned out one-half, and used for salad, the remainder being left to grow twice the height, for greens. No thinning of the plants is necessary. Allow about three feet of

row for each person. Sowings should be made at intervals of ten days until the approach of warm weather. Do not eat the plants after the flower buds appear, as they are then strongly flavored.

GARDEN CRESS

Garden cress may be treated like mustard. A good way of growing it for winter use, is to plant it in small boxes, filled nearly full with soil, and placed in a sunny window.

Water cress has been found to succeed upon very moist garden soil. To obtain it in perfection, it should be grown in running spring water. All that is necessary is to set a few slips of the stems along the wet margins of a brook.

ENDIVE

Endive can be sown the same as lettuce, but is generally grown to supply

treatment as carrots. In the fall the roots are dug. They are then planted in earth in a dark cool place in the cellar. In about a month's time, finely blanched crisp leaves are thrown out from the crowns, and, when cut, new leaves form. Should your cellar not be dark, the crowns can be covered loosely with some light litter, to the depth of a foot or so. The crown of leaves forming under the litter will resemble small heads of lettuce.

Successive plantings can be made, if some of the roots are stored in the same manner as carrots. By so doing, a supply of fresh and delicious salad may be had all winter. Witloof is the best variety to use.

PARSLEY

Parsley is the best known and most frequently used garnish. The leaves are



All kinds of Vegetables Growing on a City Lot.

the fall and early winter demand. For this purpose the seed is sown in June or July, in small beds, the plants transplanted while small to shaded cold frames, and set out in the garden the latter part of August. Hoe frequently to keep down weeds and loosen the surface.

When the plants are about a foot in diameter, their leaves are gathered up, and tied loosely to blanch. In two or three weeks they will be a beautiful white, and should be used at once, as they soon decay. For this reason the number of plants tied at any one time should be in proportion to the expected demand.

CHICORY

The tender, blanched leaves of chicory make excellent salads. The unblanched leaves are sometimes used for greens. The seed is sown in the open ground in May or June, and given the same

used also for salads and flavoring. Thirty or forty plants should furnish almost any family. The seed is very slow in germinating, and may be sown in a small box, and transplanted out in the garden when about an inch high. The Moss Curled will give the best satisfaction.

A few plants can be taken up in the fall, and planted in an eight-inch flower pot, or small box, and placed in a sunny window. The yield will astonish the amateur. When picking for use, always take the outside stems, leaving the central leaves of the crown to grow and furnish future pickings.

Attractive garnishes can also be made with lettuce, cress, endive and young mustard. The young leaves of fennel, dill and carrots are also useful, and the various colors of nasturtium flowers are very striking.

The China Aster

John Cavers, Oakville, Ontario

THE China Aster (*Callistephus hortensis*), is one of the best of the annual garden flowers. The plants are easily grown, the bloom is profuse, and the forms and colors are various and pleasing. It is comparatively free from disease and insect enemies. Its season of bloom is from the end of July until frost, the finest varieties being at their best in the latter part of August and in September. The plants are inexpensive. There is no flowering annual that will yield so much in pleasing bloom for its cost as the China Aster. It is worthy of a place in every farmer's garden as well as in village, town and city gardens.

The plant is a native of China, and was introduced into Europe nearly 200 years ago. It has been well known to American gardeners for a hundred years. The fine forms—variations of the Comet type—that are making this flower popular, have been introduced within twenty years.

Like the dahlia and chrysanthemum, the China aster is a late-flowering plant. It does not give satisfactory results from forcing or from too early planting, but this development has been at the expense of size and quality of bloom.

PLANTING AND CARE

A good, friable loam soil with moisture retaining quality is best for the China aster. If the soil be at all inclined to sourness, a light dressing of quick lime should be given, and well raked in before planting. In such soils, two or three light applications of wood ashes applied during the growing season and cultivated in will also be beneficial to the plants. It is not desirable to replant asters in the same ground year after year. Plant early varieties twelve by fifteen inches; late varieties, fifteen by eighteen inches.

In planting, firm the soil well around the roots; then cultivate often, and as soon as possible after a rain to preserve moisture. As the plant is shallow-rooted; cultivation near it should be light.

DIS-BUDDING

If the plant be grown simply as a bedding plant, no disbudding other than taking out the leader bud is necessary. If it is grown for cut flowers, the number of buds should be reduced to eight to twelve; if for exhibition purposes, two or three only should be allowed to develop. In any event, the leading bud should be removed.

The selection of plants for seed and the sowing of it is a business by itself. Much of the development of this flower

is owing to the production of its seed being specialized by a few men. In this connection the best known names are, in the United States, Vick and Semple; while in Ontario, we have Manton and Lock, who have done some good work on this line, but on a much smaller scale than that of the two former named.

The following are a few of the best known varieties: Early—Queen of the Market, in white and pink; Snow-drift, the best early white, and Lavender Gem, pale lavender; second early—Mikado, white; late—Miss Kate Lock, in white



—Selecting Asters for Seed

Garden of Mr. W. Spendlow, Ottawa. See next page

and pink; Royal Purple, a rich color; Violet King, large and fine, and Branching, in white and pink.

Lilium Auratum

Frank Wise, Peterboro, Ont.

The queen of all lilies is *Lilium auratum*, "the gold-banded lily of Japan." In a partially shaded place, with good soil conditions, and proper treatment, this lily will thrive and grow, and will sometimes reach a height of six feet, bearing quite a number of very large handsomely marked flowers.

There are several well-defined varieties of this lily. In *L. a. rubro-vitatum*, the band running from the base to the tip of each petal is crimson, the petals being spotted with lake; this is the most gorgeous flower of them all. The largest is *L. a. platyphyllum*; this variety has a much wider leaf than the other three; the band in the flower is yellow, and the spots crimson. The other two varieties are *L. a. Wittei*, petals pure white, with the exception of a band of yellow in the centre of each; and *L. a. virginale*, a deep yellow band, with petals very sparingly spotted.

So much for the varieties; now for conditions of soil and treatment. In the first place, select a partially shaded, well-

drained aspect, sheltered from strong winds. Dig out the soil for a depth of from two to three feet, and fill in with a good fibrous loam mixed with about one third leaf mould which can be obtained from any hardwood bush. Plant the bulbs about six inches below the surface. Do not allow the bed to become dry and the soil baked. Water frequently and well; thoroughly soak the soil, not merely sprinkle.

Staking must be looked to as, owing to the great weight of the flowers, the slender stem is apt to break off at the bulb. Do not make the mistake of placing animal manure in your lily bed as lilies are seldom benefitted thereby, but more often damaged. This lily has been known to stand our winters in Peterboro with a protection of dry leaves placed on in the fall.

Calves in Orchard

I have a young orchard about ten or twelve years old. It has been plowed and manured for four successive years and is troubled with weeds. 1. Would it be profitable to sow rape on it for calves and how many calves would it pasture? 2. At what time would it be ready for pasture? Is rape sown early or late? 3. Could the whole piece be sown to oats, then fed to dairy cattle and afterwards sown to rape? 4. At what rate is rape sown, where could I get the seed and what is it worth a bushel? Is it a good nurse crop.—T. L. L., Leeds Co., Ont.

You might expect to be able to run four or five calves per acre. The number it will be possible to pasture, will be very materially influenced by the character of the season; that is, of the same area, in a wet season, there will be very much more feed than in a dry season. In any case it would prove profitable to cultivate the land, and sow rape thereon, for this purpose. 2. Rape may be expected to be ready to pasture anywhere from four to six weeks after sown. It may be sown as early as suits the convenience of the farmer, or anywhere up to the end of August. 3. The orchard might advantageously be sown to peas and oats early in the spring, the peas and oats cut for green feed, then the land worked up again, and sown down to rape in July. 4. When sown broadcast, it will be found necessary to sow from four to five pounds an acre. The seed may be procured from any reliable seedsman.—Answered by J. H. Grisdale, Ottawa.

A durable black ink for zinc labels, is made as follows: Verdigris, one ounce; sal-ammoniac, one ounce; lamp black half an ounce; rain water half a pint. Mix it in an earthen vessel. Keep in a bottle. Shake before using, and use a clean pen, (a quill pen is best), on bright zinc.

Lawn and Garden Hints for June

BY THIS time, the thin spots on the lawn, that were seeded early in the season, should show a good stand of green. If you do not possess a lawn roller to level uneven places, use a flat pounder about eight or ten inches square, made with a two-inch plank, and a long handle. Keep the rake and the spud in action.

In a newly-made lawn, keep a careful watch on the weeds. Do not allow them to get a start. Keep the turf thick and velvety, and the weeds will be in the minority. On many old lawns, dandelions are a nuisance. Use the spud, and immediately afterwards use the pounder to fill up the holes that otherwise would afford lodgment for seed that is blowing about freely.

Keep the mower going. Frequent mowings increase the body of the sward. Do not mow too closely, but often.

THE FLOWER GARDEN

Keep ahead of the insects on rose bushes. Give the leaves a good sprinkling of hellebore now, if this has not already been done. Sprinkling the bushes once a day with water alone will keep down many pests.

Plants for bedding may be placed in the open early this month. In color schemes, harmony should be the first consideration. Do not attempt too much.

Sub-tropical effects may be produced by the use of plants that are appropriate. An excellent centre plant for such beds is the ricinus, or castor oil plant. Other plants for beds of this kind are palms, caladiums, ficus, aspidistras and ornamental grasses.

The canna may be used with sub-tropical plants, or with those ordinarily seen in our gardens. It is excellent alone or in combination.

Plant some gladiolus bulbs, and plant some more two weeks later for a succession. If you want a dozen superior bulbs, read the premium offers on the inside back cover, and on page V. of this issue.

Sweet peas should be watered often. Never let the ground get thoroughly dry, and do not keep it too wet. An intermediate stage of moisture is just right.

Read the article on tuberous begonias that appears on page 126 of this issue. See, also, the premium offer on our inside back cover, and on page V., if you want a good rex begonia.

Old plants of geraniums, that have become tall and unsightly, can be made into nice bushy plants. Cut them back now to within a few inches of the old hard wood. Keep the soil only moist; not too wet. When growth starts, re-pot into a pot one or two sizes smaller, using soil composed of two parts of

loamy potting soil, and one part of fine, sharp sand. Water well, and let them grow.

Plant lilies. A good *Lilium auratum* is offered free elsewhere in this issue.

Pick off the faded blossoms from pansy beds. The size of pansy flowers can be kept up by watering occasionally with weak liquid cow manure.

Dahlias planted now usually will give better results than if planted earlier.

Plant all kinds of common annuals, such as mignonette, marigold, petunias, portulaca, calliopsis, eschscholtzia, salpiglossis, balsams, zinnias, poppies and so forth.

If you want best results in the flower

from your trees, such as plums and peaches, thin the fruit on the limbs soon after they are well set.

THE KITCHEN GARDEN

The vegetable garden should be cultivated often to keep down the weeds, and to prevent evaporation of moisture from the soil.

Plant sweet corn, cabbage and cauliflower.

Every amateur's garden should contain a number of salad crops and garnishes. Read the article on page 127.

When danger of frost is past, sow tender vegetables, such as cucumber, pumpkin, squash and melon.

The use of the water hose will give



Give Tulips the Foremost Place in the Garden of Spring.

A corner of garden at the residence of Mr. R. B. Whyte, Ottawa. In the foreground are Macrospilas, followed by Rose Ponpons, Parisian Yellows and Goldflakes.

garden, do not neglect the four chief operations of the season, namely, thinning, weeding, cultivating and watering.

Get your window boxes ready. Put them in position as soon as danger of frost is past.

WITH THE FRUITS

Weed the new strawberry patch, and keep the surface soil well stirred. Remove all blossoms, so that the strength of the plant may go towards the production of an abundance of runners. If you are growing strawberries on the hill system, remove the runners. Larger and better strawberries may be secured by this system, but not so many of them.

When picking strawberries, do not leave the berries in the sun. Choice fruit should be picked by pinching off the stem, touching the berry as little as possible. Do not remove the hull until preparing for the table.

To have big, choice specimens of fruit

better results in the vegetable garden than if the weather alone is depended upon for moisture. The best time to apply water is in the evening, but water at any time rather than allow the garden to suffer from drought.

Home-Grown Seed

Editor, THE CANADIAN HORTICULTURIST:—We have raised our own aster, pansy and other flower seeds for the past 25 years, and our cabbage and corn for the last 20 years. This demonstrates the fact that good seed can be grown in this part of Canada.

There is no excuse for large sums of money being sent out of our country to purchase foreign seeds, such as is done every year. Good seeds can and should be grown in the Dominion. The plants that we grow for seeds are treated as a hoed crop.—W. Spendlow, Ottawa South, Ont.

The White Fly of Greenhouses

A. McMeans, Ontario Agricultural College, Guelph.

THE combatting of insect pests, is always a serious problem to the grower of greenhouse crops. One of the hardest of these pests to control, is the white fly or plant-house *Aleyrodes*. The chief vegetable crops injured by it are cucumbers, tomatoes, and sometimes lettuce, in flowers, pelargoniums, ageratum, and fuchsias, are the most susceptible to its attack.

Its presence can be detected by making an examination of the underside of the leaves of the plant. In the adult stage, the insects will fly around the plant when disturbed, generally returning to the same plant. In the egg and nymph stages they are attached to the under side of the leaf, and can hardly be distinguished with the naked eye.

According to observations made at the New Hampshire and Connecticut stations it takes about two weeks for the eggs to hatch into nymphs. These nymphs move about over the under surface of the leaf for a few hours, and then insert their tiny beak into the tissue of the leaf, taking on the appearance of a scale. These scales remain in position two weeks or more, until a T-shaped rupture appears in the back skin of the pupa case, and the adult white fly emerges—a small, little insect about one-twenty-fifth of an inch in length, with four white wings, from which it takes its name.

This insect has sucking mouth parts and cannot be controlled easily by the use of spray poisons. There is but one sure remedy, when once these pests make their appearance in a greenhouse. Prepare to give battle to them at once, and keep prepared for their return.

FUMIGATING THE REMEDY

Hydrocyanic acid gas is the only kind of fumigation that will clean them out, but on account of its dangerous character on human, as well as insect life, it makes people rather timid about using it. If ordinary precaution is observed there is not the slightest danger. We use it with good results in the College greenhouses, according to the following formula: One-fifth of an ounce of cyanide of potassium; two-fifths of an ounce (by measure) of commercial sulphuric acid; four-fifths of an ounce (by measure) of water, to each 1,000 cubic feet of space.

HOW TO DO THE WORK

Measure the cubic feet of each house carefully. See that all ventilators are closed, and all doors locked, except the ones through which you will make your exit. Heating pipes should be set for the night. The temperature of the house should not be over sixty degrees Fahr.

The foliage should be as dry as possible, as the presence of moisture increases the liability of injury to the foliage. Choose a still, dark night, sunlight or moonlight seem to have a damaging effect. Use glass or stone vessels, place them in the aisles as closely as needed, then go along and put the water in all your jars, next add the sulphuric acid to each vessel—always put in the water first, never the acid. Now, we are ready for the last act. Have your packages of cyanide carefully wrapped in paper. Take your baskets or tins—as many packages in each tin or basket as you have jars in each aisle, and as many tins or baskets as you have aisles. Let each man take a basket to the far end of each row of jars, each dropping in the first package at the same time. Then go quickly to the next jar, and so on, until you get to the end of the house, and out of the door, locking it without delay.

SOME DON'TS TO OBSERVE

Do not unwrap the packages, but drop them in with the paper securely wrapped around them, as the acid will quickly eat it off. Do not let the acid spatter on your hands, either in handling it, or when placing the cyanide in the jars. Above all things, *do not go back* past the jars after you have placed the cyanide in them. Remember this gas is as deadly to human life as it is to insects. Leave the gas in all night. It is perfectly safe to go into the house in the morning: Two jars will be found sufficient for 10,000 cubic feet of space.

Most authorities recommend one ounce of cyanide per 1,000 cubic feet of space, leaving the gas in for a space of twelve to twenty minutes; if left longer at this strength, it acts injuriously to the plants. We have been using one-fifth of an ounce per 1,000 cubic feet, and leaving it in all night, with perfect success in killing the fly. No injury is done, even to tomatoes, which are one of the most easily injured greenhouse crops.

Onion Culture

Herbert Hachborn, Echo Place, Ont.

Onion seed should be sown as early in the spring as possible, in drills fourteen inches apart, at the rate of about four pounds to the acre. When the onions are about two inches high, they should be weeded and thinned. If the seed is not sown too thickly, they do not require thinning. I generally weed them about twice in a season, and wheel-hoe them once every week, until they commence to form bottoms, then I go through them with the ordinary hand-hoe.

By the time that the tops commence

to die off, I roll a barrel over them, two rows at a time, to break down all the tops. When they are fairly well dried off, the onions should be pulled and topped into boxes and taken to the barn floor to dry.

Should it rain before they can be topped and taken in, it is best to wait a day or two, so as to give them a chance to dry again. The rain does not hurt them; in fact, two or three showers will do them good. They can stand, also, about three degrees of frost.

Wilt of Cucumber

I am sending you a cucumber plant, and should be greatly obliged if you will give me your opinion as to what disease it has, or the cause of its condition. I planted them in the usual way, and up to a certain stage they appeared healthy, and then gradually went wrong. I have lost my entire crop. I have had many year's experience in cucumber growing, but never met with this before.—W. P. J., B. C.

The stem and leaves of the cucumber sent with the above letter, showed that the plant was infected with some form of Bacterial Wilt. Microscopic examination from the interior of the stem and leaves, showed bacteria present in large numbers. Some of these were transferred to slices of healthy cucumbers, and the slices were quickly rotted in two days. The organism does not seem to be identical with the one usually associated with the Wilt disease of cucumber, melon and squash described by Erwin F. Smith, of the United States Department of Agriculture. The wilting of the plant is caused by the clogging of the water tubes, through the growth of bacteria in them. Spraying is useless and preventive measures suggest pulling up diseased vines and burning them. This disease is frequently carried by the cucumber beetle and squash bug, hence the necessity of destroying these insects. Fields in which the infection has taken place should be planted with some other crop, and succeeding crops of cucumbers should be planted on new land, which has not been used for the growing of cucumbers.—Prof. F. C. Harrison, Macdonald College.

Cut Worms

Nelsou Carron, Riviere du Loup, Que.

The treatment for cut worms on cabbage, cauliflower and tomato plants, is quite simple. Wrap your plants in a little piece of paper, just above the fibres of the root, and high enough to keep the leaves upright. This prevents the cutting of worms, and the burning of plants in hot days. Some growers say that this takes too long to be done profitably.

It takes a little time, but it requires still more time to replant your field four or five times. Some times you come short of plants, which also is prevented, by adopting the method advised.

Commercial Fertilizers: Their Nature and Value

Frank T. Shutt, M.A., Chemist, Dominion Experimental Farms

COMMERCIAL fertilizers are materials, largely, but not altogether, of the nature of chemical compounds, that furnish nitrogen, phosphoric acid and potash in a more or less readily available form. Their value depends simply and solely on the percentages of these elements they contain, and the availability of this plant food. Nitrogen, phosphoric acid and potash are known as the *essential elements of plant food*, because it has been found that, of all the elements extracted, or absorbed from the soil by crops during their growth, these three only must be continually returned. Without this putting back of nitrogen, phosphoric acid and potash, a soil's productiveness must be seriously affected under any system of cropping when the produce is sold. Let us clearly understand, therefore, that the value, agriculturally and commercially, of a fertilizer is controlled by the amounts and availability of these forms of plant food that they contain. In this country, the term "phosphate" is applied by many people to all kinds of fertilizers, irrespective of their composition. This is not right; it should be restricted to those fertilizers which furnish phosphoric acid only, such as superphosphate and basic slag.

The term "artificial" fertilizer is objectionable, because it is misleading. The elements of plant food that fertilizers furnish, are identical with those of stable manures. The crops could not distinguish between them. Bread and pie and jelly are prepared foods, but not artificial foods, so likewise fertilizers may be prepared, but not artificial, in the sense of not being real and normal forms of plant food.

The term "stimulant," as applied to a fertilizer also is misleading. Fertilizers are not stimulants; they do not revive the plant, giving it temporary strength. They feed the plant and their elements are built up into the plant's tissue of root and branch and leaf and seed. If used rationally—that is, in conjunction with stable manures, to keep up the humus content of the soil—they cannot be likened to the whip on the tired horse. "But are they not exhaustive?" I hear some one ask. Sometimes they may be, but again the answer is that such will be due to irrational use.

The crop-producing power of a soil is measured by, or in proportion to, that element of plant food least abundant, and not by that in greatest abundance. This fact explains why it is that the continued use of some one fertilizer, or, rather, fertilizer-ingredient, has what ap-

pears to be an exhaustive effect. If, for instance, nitrogen only is supplied (as in nitrate of soda) the increased vigor and growth of the crop resulting will extract from the soil larger amounts of potash and phosphoric acid than would otherwise have been the case. The natural stores of available phosphoric acid and potash in the soil are thus depleted, the larger yields at first obtained, rapidly fall off, and the soil is poorer than at the start. This points to the necessity of a rational system in the use of fertilizers, and supplying all the necessary elements of plant growth. It is only by such practice, that a maximum yield can be obtained without depleting the

and every one about to purchase these ready-made, mixed fertilizers should consult that bulletin before buying. It will not be possible for me to say anything further regarding them, in case it might be construed into a special commendation. One hundred and seventy-three "standard" samples were analysed last year, and obviously to discuss the merits of all would be impossible.

FERTILIZER INGREDIENTS

There is no necessity to buy ready-mixed fertilizers. The various ingredients can be purchased and the mixing, when necessary or desirable, made without any expensive machinery or any special skill. By this home-mixing of fer-



Prepare now for Fairs and Exhibitions next Fall.

The illustration shows a tastefully arranged exhibit by the Chatham Vegetable Growers Association at an Agricultural Exhibition last year.

soil. The point to be remembered in this connection, is that the yield will be proportional to that element of plant food present in smallest amount. It is, therefore, neither wise nor safe to depend entirely on any one form of fertilizer.

READY MIXED FERTILIZERS

A very large number of "ready-made," that is, mixed fertilizers, may be found on the market. These are prepared simply by mixing and grinding certain ingredients that contain nitrogen, phosphoric acid and potash, with the addition of a "filler" to make weight. Their value is calculated from their composition, that is, from a knowledge of their percentages of nitrogen, phosphoric acid, and the relative availability of these elements. You will find this information given annually in a bulletin issued by the Dominion Government (Inland Revenue Department)

fertilizers, a saving of twenty-five to thirty-five per cent. could be easily effected. Further, it would allow of the making in small quantities of several mixtures, with varying proportions of nitrogen, phosphoric acid, and potash, for the trial or experimental work. This is an important matter; one that you cannot afford to ignore. There are direct and considerable advantages, therefore, in buying these ingredients, rather than the ready-made fertilizer. The composition and merits of some of the ingredients that may be used in compounding fertilizers will be discussed in the next issue of THE CANADIAN HORTICULTURIST.

Air-slaked lime will free the cabbage plants from worms and not injure the plants.

Abundant food within easy reach is what plants require in order to make their best growth.

The Canadian Horticulturist

Published by The Horticultural
Publishing Company, Limited
PETERBORO AND TORONTO



The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF BRITISH COLUMBIA, ONTARIO, QUEBEC,
NEW BRUNSWICK AND PRINCE EDWARD ISLAND
FRUIT GROWERS' ASSOCIATIONS AND OF THE ONTARIO
VEGETABLE GROWERS' ASSOCIATION

H. BRONSON COWAN,
Managing Editor and Business Manager
A. B. CUTTING, B.S.A., Horticultural Editor
W. G. ROOK, Advertising Manager

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January 1907.....	4,947
February 1907.....	5,520
March 1907.....	6,380
April 1907.....	6,460
May 1907.....	6,620
June 1907.....	6,780
July 1907.....	6,920
August 1907.....	6,880
September 1907.....	7,078
October 1907.....	7,210
November 1907.....	7,250
December 1907.....	7,500

Total for the year..... 79,525
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January 1908.....	7,650
February 1908.....	7,824
March 1908.....	8,056
April 1908.....	8,250
May 1908.....	8,573

Sworn detailed statements will be mailed upon application.

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EDITORIAL

MORE ENTHUSIASM NEEDED

It is difficult to understand how it is that in the cities of Hamilton and Toronto it is so hard to arouse a deeper interest in the work of the horticultural societies. During the time that Mr. J. Horace McFarland addressed meetings of Ontario horticultural societies last month, the interest shown in his addresses at St. Catharines, Cobourg and Perth was great. In Hamilton and Toronto, the meetings were attended by only a comparatively few.

The societies in Hamilton and Toronto have a membership of about 300 each. The Hamilton society has materially increased its membership since last year. Both of these societies, however, have not nearly the number of members that they should have when compared with the societies of St. Catharines and Ottawa, the former of which has about 600 members and the latter, 800. Toronto should have a membership of at least 2,000. It is possible that the editors of the Toronto and Hamilton papers do not take enough interest in the work of the societies. Could the papers be interested, a marked increase in the membership of the societies would follow.

SPRAY THIS YEAR

In all probability, conditions with the apple growers will be altogether different this year from what they were last season. It is, of course, impossible to predict what the apple crop will be, but it is only a fair inference that, taking the whole apple-growing district of North America, the crop will be, at least, a normal one, if not a large one. The failure of last year in the middle western states, and the fact that we had only an average crop on the rest of the continent, makes even a large crop this year probable.

It is natural to suppose, therefore, that the prices will not be high. As a matter of fact, there are few years when the demand for the lower grades is anything but poor. It is quite possible that as far as shipping fruit is concerned, it will bring nothing next season. The man who will make most money out of his orchard this year, will spray, and reduce the quantity of inferior fruit.

The results of many experiments, conducted by the experimental stations, as well as by private individuals, have demonstrated that it is quite possible, with three or four applications of the Bordeaux mixture, to secure a crop eighty to ninety per cent. absolutely free from worm holes and fungous diseases. This can be done at a cost of about \$12.00 to \$16.00 an acre. Presuming that the trees would be equally healthy without spraying, which they will not be, and that the quantity of fruit would be as great without spraying, and this would not be the case either, the total expense of spraying would be made up, many times over, in the quality of the fruit alone.

An unsprayed orchard, we will presume, produces eighty barrels, ten of which will grade No. 1, and seventy No. 2, and this is the usual grading of unsprayed orchards. At the normal price of \$1.00 a barrel on the trees for No. 1, and fifty cents a barrel for No. 2, this crop would be worth \$45.00 an acre. If the same orchard had four sprayings at a cost of \$16.00 an acre, the conditions would be reversed. There would be

seventy barrels of No. 1 fruit, and ten of No. 2, making the crop worth \$75.00, or a gain of 100 per cent. on the cost of spraying. This is by no means an exaggerated statement. According to Mr. A. McNeill, chief of the Fruit Division, Ottawa, it has been verified dozens of times. But this is not the complete gain in spraying. The leaves of the trees are so much healthier, that the buds for a succeeding crop are perfected, and the chances for having a crop the following season are worth, perhaps, quite as much to the orchardist as the improvement in the grade of the fruit during the spraying year. Again, the quantity of fruit will be much larger. The specimens will not be dwarfed by fungi, nor will the number of the fruits be unduly lessened by the attacks of insects.

It would seem, therefore, that there is no operation in connection with an orchard that will yield such large returns as spraying. It is quite within bounds to say that for every dollar expended in spraying, the orchardist will get two dollars in the increased healthfulness of the trees, the increased quantity of apples, and in the better grade of the fruit.

A WARNING

It is an opportune time to give a word of warning to our British Columbia readers in respect to the importation of nursery stock infested with San Jose scale and other pests. Large quantities of nursery stock are imported into that province from the states of Idaho, Washington and Oregon, where the scale is quite prevalent in the leading fruit districts. An article in a recent issue of *The National Nurseryman* points out that this scale is particularly bad in some sections of Idaho.

During the past shipping season, thousands of trees from these states were condemned and destroyed by the inspectors at Vancouver while probably fifty trees would cover the amount thrown out from consignments sent from Ontario. We have been informed that the Ontario trees would not have been thrown out but for the blundering of the inspectors who threw out one lot of Cox's Orange Pippin because their appearance was unusual. This variety is a poor, scraggly grower and is top-worked and, therefore, does not appear to advantage.

It is strange that in spite of the prevalence of scale in the states named, the British Columbia Government still persists in discriminating against clean, healthy Eastern nursery stock in preference to United States concerns who are shipping in diseased trees by the thousand, which are being condemned and destroyed in wholesale quantities. The establishment of an inspection station at Revelstoke would not only be fair to Eastern nursery firms but it would allow the growers of British Columbia to secure the kind of nursery stock that they want.

CO-OPERATIVE SPRAYING

The work that the Ontario Department of Agriculture has done during the past year in the matter of offering a liberal grant for the purpose of encouraging spraying is to be commended. The formation of co-operative spraying associations, assisted by the Government grant, will do more than anything else to make the practice of spraying more popular and more general than it is now. A power spraying machine is a necessity in all orchards but, as it is rather expensive, many orchardists can-

not afford to purchase and operate one themselves. The offer of Government aid should make it possible for all growers to have the use of a power machine at small expense when operated co-operatively.

Last year and this season, many growers have taken advantage of the Government's proposition. As a result, it is reasonable to suppose that they will have more fruit of superior quality when harvest time comes than they have had before. The success of these applicants will advertise the scheme throughout the province. The work will do much to elevate the standard of the industry.

Many of our readers will notice that the number of pages in this issue of THE CANADIAN HORTICULTURIST is less than usual. While the size of the paper has been decreased for this month and probably will be the same for next, there is practically the same amount of reading matter as in our issue of standard size. The decrease is due chiefly to the falling off in the amount of advertising matter carried at this season of the year.

The annual meeting of The Co-operative Fruit Growers of Ontario will be held in Toronto on June 9th. Representatives from all the local co-operative associations in the province are invited to be present.

Our Premium Offer.—Lovers of flowers will this month have an excellent opportunity of securing some choice material for their gardens by taking advantage of our premium offer in this issue. Full particulars are given on another page. Do not wait until the season for planting is past.

NOTES FROM THE PROVINCES

Winnipeg

Geo. Batho.

The season in the west so far seems to be a very promising one. Some winter killing of trees and shrubs has occurred, but the spring has been an unusually favorable one, opening out with but very few frosty nights and with just about enough rain to put the ground in good shape. In the Winnipeg district—and no doubt throughout the whole of the west—an unusually large amount of attention has been paid to gardening this spring. Large numbers of trees have been sold in Winnipeg by the nursery firms during the past winter, and reports show that tree planting has been undertaken on quite an extensive scale throughout the three prairie provinces.

The need for a fuller expansion in the market garden business about our cities came up recently in an interview between some of the Winnipeg city authorities and a delegation that waited upon them. It was claimed that Winnipeg alone imported about 500 carloads of vegetables each year from outside points. This is in spite of the fact that much land eminently suited for vegetable growing lies close about the city.

The Western Horticultural Society is proposing to the rural schools of Manitoba a series of competitions in the beautifying of school grounds. There is need in the

west for work along these particular lines.

Strawberries have been sold in considerable quantities here for about a month and a half past, and are retailing now for 25 cents a quart. A few lots of apples have been coming in up till this month, but have now ceased to arrive. There is always a good demand for fruits and vegetables here and tremendous quantities of both keep coming from the United States to supply the demand.

Montreal

E. H. Wartman, Dominion Fruit Inspector.

Fruit prospects on the Island of Montreal are promising. The crop is largely apples. The trees have wintered well; and fruit buds, which are numerous, are swelling fast. Still they are not beyond the danger point. If two or three days cold wind, from any point nearing freezing temperature, should prevail, especially when bloom is opening, it would have a marked effect; however, I will not predict any such disaster. Strawberry plants just uncovered are looking well.

We are reminded every day of the sunny south. North Carolina strawberries are arriving in good order and selling fairly well around 17 cents a quart box in crates containing 32 boxes. This is auction price at Montreal Fruit Auction Co. Geo. Vipond & Co. handled the first car of the

NORWAY SPRUCE

Strong transplanted with masses of Roots. Stock in all sizes up to 3 and 4 feet.
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FREIGHT PAID TO
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(The above Cut shows one field of Norway Spruce growing on our Helderleigh Farms)

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GATHER YOUR CHERRIES WITH
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The cherry is not touched or bruised by the hand. The long unsightly stem is severed and most of it is left on the tree; hence the fruit looks much more attractive in the box or basket. It also keeps much better, and the fruit buds for the next year's crop are not injured. It is held in one hand and operated easily and rapidly. The other hand is free to hold the twigs, etc. Every cherry that is clipped goes into the cup and is secured. The picker has been thoroughly tested and gave good satisfaction. Sent postpaid on receipt of 75c. Two for \$1.25. Money refunded if not satisfactory.

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All the best Fruit Growers are trying it. It will kill the living insects in your orchard and give you Clean Fruit. **ORDER AT ONCE**

\$3.50 Per gallon which makes **100** Gallons mixed with **COLD WATER**

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season here, and continues having frequent cars forwarded to meet the demand. The weather being cool has a tendency to curtail trade.

Pine apples, arriving in car lots from Hayana, are of superior quality. Each fruit is wrapped in tough soft paper, 18 to 36 in a crate. The cultivation of this fruit must have every attention, and the season as well must be favorable, as the fine specimens coming forward show. Bananas are arriving in large quantities and, of superior quality.

All these fruits, at moderate prices, have a tendency to keep low grade apples, which are much in evidence, at a price ruinous to shippers. Apples on hand now have been picked seven months. Their life is spent and they are fast showing signs of decay. Still, this fruit which was laid in in large quantities, is decreasing fast. Fortunately, we have so large a population in Montreal that with one apple of medium size per head, it takes 1,000 barrels to go the round.

Prince Edward Island

Rev. Dr. Burke.

To the query, "How does the show of fruit buds compare with other years in Prince Edward Island?" I can only say that the season is so backward here that I have not had much opportunity to judge. Looking over my own plantation to-day, I find no trace of awakening life; everything is still bound up in its winter lethargy. Whilst we have had the mildest of winters, the spring is anything but advanced. Usually plowing is in full swing by the 10th of May.

I was a little afraid that perhaps the

unusually changeable weather of the winter might have affected the trees. In early March the freshets were on; as a matter of fact we had thaws all through the winter and the trees standing in this tepid water with a hot sun and high temperature were liable to be subject to premature sap circulation such as might induce "sun-scald," so called, later. Of course, if there was any freezing in this process we will see the results only after the summer is entered upon. I am inclined to think, however, that things are all right in general. The trees which I examined look fine. They are clean and healthy looking and so far as I could judge, fairly well loaded with fruit buds.

Lasts year we had a great show of blossom and very little fruit. Nobody could tell just why not. The bareness of the orchards then should help the trees to a good crop this year. Nothing, without becoming outcast, can keep up barrenness long. The cursed fig-tree is an example to the ages of this. Even the inanimate things seem to detest barrenness, "Nature abhors a vacuum."

There was no snow to hurt in the past season; no mice attacks on the unprotected trees. They are ready to make wood and fruit and I am hopeful that this year of grace will brighten us with a full crop of apples, at least. We have had a few short years now and one misses the fruit immensely after a period of plenty. There is great fear of insect invasion, however. The mild winter will permit the eggs of orchard pests to come through unaffected, and if all that are deposited hatch out, we may have our harkis full fighting them. It is well to plan the campaign early and deliberately.

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Annapolis Valley, N.S.

R. J. Messenger.

Our scientific horticulturist tells us that two important conditions for a good fruit crop are: First, the previous summer comparatively dry and warm—dry so that there will be little wood growth and consequently greater formation of fruit buds; and second, a mild winter and late spring—mild so as not to injure the buds and late in spring so that the buds may not get nipped by late frosts after opening on early warm days. Though our summer last year was not very dry, still we have had a mild winter and late spring. On May 1st the buds had hardly swelled to any extent. On May 14th only the earliest varieties had shown more than the small points of leaves. Though at this writing there has been very little development, still the signs are for a good show of blossoms.

I have spoken with several of our best orchardists, and the general opinion is that the trees here looked better since spraying has become more general, the trees are bright and healthier looking than formerly. Even with the present good prospects there may be many causes to lessen the crop. One grower said, "I am never sure of my apple crop until I get it in my pocket."

Trees are 10 days later than in average years and spraying for the first time was not generally begun before May 15th. It is a strange fact that even to-day there are many good business growers who still express doubt as to the efficiency of spraying. To these I always make the answer, "There are nine men who spray carelessly to one who sprays thoroughly and only thorough spraying pays."—May 15th.

No Duty on "Friend" Nozzles

The "Friend" Mfg Co., Gasport, N. Y., originators and owners of the "Friend" American and Canadian patents on spraying nozzles, have opened a Canadian branch for their manufacture at Niagara Falls, Ont. All communication with this company should be addressed to the home office at Gasport, N. Y.

By the establishment of this branch, which at present is for the manufacture of nozzles only, all duty on them is removed. The nozzles may now be obtained by remitting \$1.50. They may also be obtained from their Ontario representatives, Wood, Vallance & Co., Hamilton, Ont.; Alexander Hardware Co., Hamilton, Ont.; E. M. Smith, Winona, Ont.; and Joseph Tweddle, Fruitland, Ont.

If buying nozzles from other representatives than those above mentioned, be sure that the name "Friend" and the patent marks are stamped upon them. All large nozzles on the market to-day, doing away with the cluster, not so stamped, are infringements and will be prosecuted to the fullest extent of the law.

The manufacturers of the "Friend" hand and power spraying outfits and their accessories are aggressive, and are keeping a close watch on the trade. With the undivided attention which they give, their situation as it is in the heart of Niagara's Gardens, pioneers in the art as they are, building every part of their machines as they do, assures fruit growers of a better line of spraying apparatus than can be produced by any other manufacturer. Other agencies are now being established for these nozzles in all parts of the Dominion of Canada.

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Anyway drop us a postcard (2c stamp) and we will send you our illustrated book No. 4. It is a finely gotten up factful little booklet.

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Toronto Cartage Charges

On the first of May, the wholesale fruit and produce and commission merchants of Toronto, who have formed themselves into an association known as "The Toronto Fruit and Produce Association," issued a circular to all shippers of fruit and vegetables, advising them that, "owing to the high and increasing cost of handling goods and delivering them, a uniform cartage charge will be made to the shippers on all goods shipped on commission as follows: On 54 qt. cases, 5 cts. each; 36 qt. cases, 3 cts.; 27's and 24's, cases, 3 cts.; 11 qt. baskets, 1 ct.; all packages smaller than 11 qt. baskets, ½ ct.; bgs or sacks, 5 cts.; barrels, 5c; carloads of potatoes excepted."

The fruit growers consider this schedule of charges another hold-up in their business. Between the commission men, the railways and the express companies, they will soon have a hard time to hold their

own. Indignation meetings have been held and expressions of feeling have been sent to the aforementioned association.

At a meeting of The Clarkson Fruit Growers' Association, a warm discussion took place on the action taken by the commission men. A resolution was passed unanimously refusing to ship fruit on the conditions mentioned in the circular and appointing a committee to make other arrangements to dispose of the produce of the section. The fruit growers of Bronte passed a resolution similar to the Clarkson one.

The following resolution was passed at a recent meeting of fruit growers in Oakville, Ont. Moved by P. A. Bath, seconded by W. R. Davis:

That the fruit growers of the Oakville District in meeting assembled, having considered the schedule of cartage charges of the Toronto Fruit and Produce Association, as set forth in the circular letter of the association dated May first instant, are resolved not to submit to the proposed extra charges on fruit and vegetables consigned to members of the said association for sale on commission:—

That the following fruit growers, viz:—E. A. Morden, Capt. Geo. Murchison and James Waldbrook be and are hereby appointed a committee to make arrangements for other markets for the fruit of this district in the event of the said association persisting in acting on the proposed schedule of cartage charges:—

And that the secretary be and is hereby instructed to send a copy of this resolution to the said association and to request a reply on or before the 18th instant.

Carried unanimously. Certified to be a true copy.—J. Cavers, secretary, Oakville, May 14th.

runs, only such parts of the runs as the hens frequent most need to be dug over. No matter how large the runs are, there is usually a corner or portion near the gateway in each pen, where the attendant enters to feed, where the fowl will congregate and consequently that part becomes dirty and unhealthy.

In each pen there are also spots which are used by the fowl for dusting themselves. If there are places of this kind, the soil must either be too wet or too hard and sand or light soil should be supplied, otherwise the fowl will become infested with vermin, which lessens the egg supply from the layers and retards the growth of the stronger chicks and causes fatalities among the weaker ones. The addition of a few cents worth of powdered sulphur to the soil in the dust bath is very beneficial.

The hatching should now be finished for the season. It is of course a great temptation to set another hen or two or to run the incubator for another batch particularly if the one just out has been unusually successful. The tendency to hatch too many is very prevalent among beginners and is the cause of many failures. It is a sad sight to see 100 or more chicks brooded and penned in a space that is barely large enough for 50. Overcrowding must be avoided. The chicks should be graded also and the different sizes separated. Experience has taught the writer that 25 to 30 chicks are enough in one pen or in one house. When more than that number are together, the smaller chicks get in the middle and bottom of the bunch and the large ones scramble over them particularly on chilly nights. This dwarfs the small chick and prevents the feathers growing.

It is a sure indication that chicks are overcrowded when at two months old and over, only the wing feathers have grown, the rest of the body being perfectly bare, both of down and feathers, these having been rubbed off at night in the scramble to get the warmest place in the sleeping quarters. Chicks raised in dirty cramped pens will mature but very slowly. They are always undersized and totally unfit to stand the strain of heavy winter laying and in fact rarely do lay in winter and also are unfit for breeders. Weakly parents never beget vigorous progeny. Therefore it is far more profitable to raise 40 or 50 healthy chicks than 100 weak ones.



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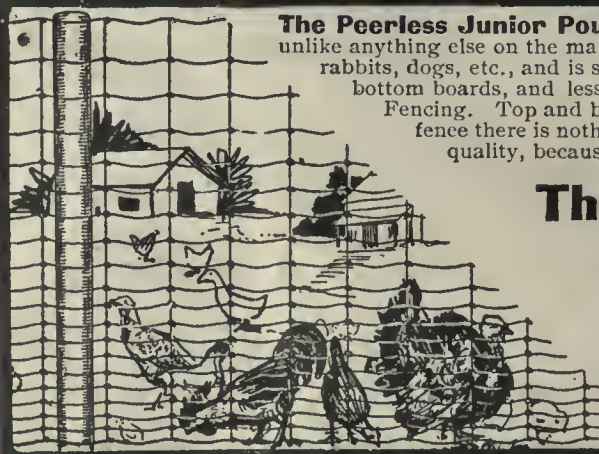
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Conducted by S. Short, Ottawa

Cleanliness is of prime importance at all times and in all seasons and especially so now with hot summer weather approaching. Small yards and pens should be spaded frequently to keep fresh the surface of the soil. If the pens are large, with grass

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Winnipeg, Manitoba

THE FRUIT CROP PROSPECTS

OWING to the backwardness of the season in most fruit districts, the blooming period has been delayed and it is yet early to make predictions in regard to the coming crop. From present indications, however, most growers are anticipating a favorable season. Should the apple crop be medium to large, it is probable that prices will not be high, particularly for the lower grades. In view of this probability, growers should attend strictly to all orchard operations that will tend to decrease the percentage of inferior stock and to produce fruit that will command the best prices going. The following reports from correspondents of THE CANADIAN HORTICULTURIST point out the present condition of our orchards. Growers in all fruit districts of Canada are again requested to send monthly reports for publication.

PRINCE COUNTY, P.E.I.

Tignish.—The season is late. Fruit trees are still in the bud and growth is slow. It is too early to forecast prospects.—A. I. McFadyen, May 14.

QUEEN'S COUNTY, P.E.I.

West Cove Head.—The buds are not far enough advanced to indicate prospects for this year's crops.—Geo. Auld, May 15.

KING'S COUNTY, P.E.I.

Aitkin's Ferry.—Plums and apples probably will bloom well. Strawberries, on

high land and mulched, look well; on low land, winter killed.—D. J. Stewart.

KING'S COUNTY, N.S.

Cambridge.—All orchardists are spraying. Trees are budding well.—J. Howe Cox, May 17.

Berwick.—Prospects are excellent for a large crop. Trees that bore heavily last year are showing a fine lot of buds and as last season gave us plenty of moisture, I think the trees are in splendid condition to set full of fruit. Spraying is in full blast.—B. H. Lee, May 14.

HALIFAX COUNTY, N.S.

Gay's River.—Fruit trees have come through the winter well. Fruit buds are numerous and quite forward and indicate a fine showing of bloom. Should no late frosts appear, the crop will be a bumper one.—G. N. Gordon, May 15.

SUNBURY COUNTY, N.B.

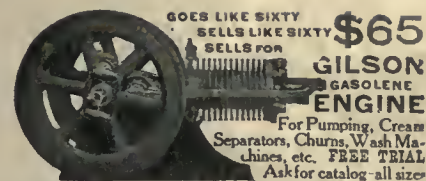
Upper Sheffield.—Prospects are good for a large crop of fruits. Trees wintered well.—Isaac W. Stephenson.

CHARLOTTE COUNTY, N.B.

St. Andrews.—Apple trees stood the winter well and are just starting to bud.—Jules S. Thebaud, May 15.

CHATEAUGUAY COUNTY, QUE.

Chateauguay Basin.—Prospects for a large apple crop are bright as trees have come through the winter with but little



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damage. Trees are a little late in blossoming on account of the wet season. Plums indicate a heavy crop, strawberries wintered in splendid condition. Fewer raspberry bushes were winter-killed this year than for years. Gooseberries and currants are in excellent condition. Grapes show no damage from the cold so far. On the whole, the winter of 1908 was an ideal one for fruit trees.—R. Jack & Son.

ROUVILLE COUNTY, QUE.

Abbotsford.—All fruit trees and shrubs came through the winter in good shape. The present outlook for bloom is good but all depends on the weather during the next month. The tent caterpillar is more in evidence than last year but to no alarming extent.—J. M. Fisk.

MONTREAL DISTRICT

Westmount.—Prospects for small fruit are good. Apple trees are very slow in coming into leaf. On those trees that bore heavily last year, there are no signs of buds this spring. Prospects for Fameuse are not very promising. Early varieties of apples promise a good crop.—R. Brodie, May 12.

DURHAM COUNTY, ONT.

Newcastle.—Apple trees show an average amount of bloom. The following varieties are full of fruit buds: Stark, Baldwin, Ben Davis, Greenings and Blenheim. The

varieties that yielded heavily last year, namely, Spy, Golden Russet and King, will not give a full crop. Early kinds promise an average crop. Not so many young trees are being planted as in former seasons.—W. H. Gibson.

WENTWORTH COUNTY, ONT.

Winona.—Prospects never were better for full crops of all fruits, with the exception of Lombard plums and Baldwin apples in orchards that were heavily laden last year.—M. Pettit.

LINCOLN COUNTY, ONT.

Queenston.—Peaches give promise of an abundant crop. Even the shy-bearing varieties have enough bloom. It is now up to the forwarders and others interested to prepare to handle with satisfaction to all concerned.—Wm. Armstrong.

LAMBTON COUNTY, ONT.

Forest.—Blossoms on apple trees give promise of an average crop; pears, plums, peaches, cherries, and crab apples, full. Strawberries have wintered well and promise a fair crop.—D. Johnson.

YALE AND CARIBOO, B.C.

Peachland.—Prospects never seemed better. Present showing is for a full crop of peaches, apples, pears, plums and small fruits.—C. Aitkens.

Please send a report for next issue.

Peterboro Horticulture



Mr. H. L. BEAL.

The Peterboro and Ashburnham Horticultural Society is looking forward to one of the best years in its history. In addition to working to advance the interests of horticulture the society takes charge of two small parks, in the centre of the city, from which it receives a grant from the city and county councils, and expends the money in beautifying the parks by planting flowers and shrubs, and keeping the grass cut and watered. The society has a local improvement committee, consisting of the president, the first vice-president, and the second vice-president, whose duty it is to report to the society anything they think should or could be done to improve the appearance of the city's streets, parks or gardens. There are this year about 150 members. Each member receives THE CANADIAN HORTICULTURIST, and a spring and fall distribution of bulbs, roots and shrubs. This spring's distribution will consist of 12 gladiolus bulbs, which will be delivered in a few days.

The society gives prizes for the best kept lawns and gardens. There are four classes, three prizes in each class: 1st class, lawn kept by paid labor; 2nd class, lawn kept by one-half paid labor and one-half owner's labor; 3rd class, lawn kept by owner's labor alone; 4th class, best flower gardens.

Among the persons who are most enthusiastic in furthering the work of the society, is the secretary, Mr. H. L. Beal, whose portrait we publish. Mr. Beal tells us that the members of the society are much pleased with THE CANADIAN HORTICULTURIST, which is now published in Peterboro.

Prof. H. L. Hutt, O.A.C., Guelph, has been on the go most of the time during the past two months addressing horticultural society meetings in different parts of Ontario, from Smith's Falls to Amherstburg. He has already addressed over 30 societies this spring and has several more to attend.

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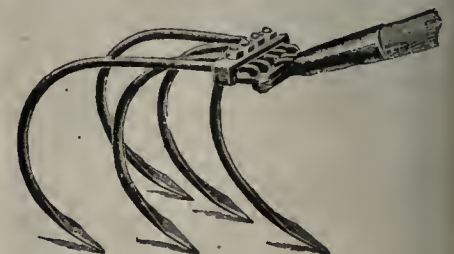
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Horticultural Meetings

About the first of May, meetings of horticultural societies in Toronto, Hamilton, St. Catharines, Cobourg and Perth were addressed by Mr. J. Horace McFarland of Harrisburg, Penn., who is noted for his work as a civic improver and reformer. The meetings were fairly well attended except at Hamilton and Toronto. Several other speakers took part in the programs. The following is a brief report of the meetings that were held in Hamilton:

Mr. McFarland's address was a descriptive one of improvement and reform work in the different cities of the United States and entitled "A Crusade Against Ugliness." It was illustrated with 120 colored views. The views were run in contrast to each other, some showing the most beautiful spots in the States, while others showed the most deplorable public places and how little beauty some people will put up with.

He told briefly of his travels and said he had not visited any city which had so many natural advantages as Hamilton. "The home," he said, "should be the unit for the street and the street should not be the place for poles of any kind." He referred to Hamilton's waterfront and said he knew of no place which could have a more beautiful water front than Hamilton might have. That might be accomplished by keeping the water pure and free from germs, which would mean fewer mosquitoes and less malaria.

He had also something to say about the monstrous billboards which adorn the shore of the bay, advertising a Toronto playhouse. He said that billboards should be more closely watched and that they

should be licensed. They are not a very good advertisement for the city, as far as beauty was concerned, and in the country, they are blots on the landscape. The smoke nuisance should also be regulated and that would mean purer air.

There were evidences of lack of treatment of the streets to make them most useful and beneficial for the beauty of the city. Other points touched on, in brief,

FOR SALE AND WANT ADVERTISEMENTS

Advertisements under this heading inserted at rate of two cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 25 cents, strictly cash in advance.

GARDENER, GOOD REFERENCES.—Life experience in all branches, English, age 40, seeks situation with gentleman. Apply Box W, Canadian Horticulturist, Peterboro.

MR. CHARLES ERNEST WOOLVERTON, Grimsby, Ontario, landscape architect, parks, cemeteries, pleasure, school and home grounds laid out, surveys made. Working drawings to a scale so that any gardener can work them out. Terms very reasonable.

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\$4,300 WORTH OF STRAWBERRIES were sold off four acres in Kootenay last year. What others can do, you can do. For bargain list of fruit lands on easy terms write—V. Dynes & Son, Ward St., Nelson, B. C.



Chas. E. Bishop, 31 Bridge St., Belleville, Ont.
Steele Briggs Seed Co., 130 King St. East, Toronto, Ont.
Jas. B. Hay, Brantford, Ont.
Adams & Tanton, 115 King St., London, Ont.
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SOME SEEDSMEN WHO FOR UPWARD OF 20 YEARS HAVE SOLD SLUG SHOT IN CANADA:

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Wm. Ewing & Co., 142-144 M'Gill St., Montreal, Que.
Robt. Kerr, 10 Ainslie St., Galt, Ont.
Patrick Bros., Market Square, Woodstock, Ont.
Geo. Keith, 124 King St. East, Toronto, Ont.
Graham Bros., 57-55 Sparks St., Ottawa, Ont.
Wm. Rennie & Co., Winnipeg, Man.
J. A. Bruce & Co., 47-49 King St., Hamilton, Ont.
Dupuy & Ferguson, 38 Jacques Cartier Sq., Montreal.
Wm. Rennie & Co., Adelaide & Jarvis Sts., Toronto, Ont.
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The original Large Spray Nozzles, doing away with the cluster. The only one with the maker's name and the word "Patented" stamped upon them. They have no horns, hooks, nothing to catch, drip or clog. Makes the finest mist-like spray. Drives the spray farther into the trees than the cluster. The "Angle" sprays up under the leaves and down into the Calyx. The "Regular" is for ordinary work. State which is wanted. Satisfaction guaranteed or money refunded.

Reference: "The Canadian Horticulturist."

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Pioneer Canadian Seed Growers
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Table Salt

is needed.

Fine—pure—full-savoured.

172

were the need of public comfort stations, garden schools for children and the grouping of public buildings.

Prof. H. L. Hutt, of the Ontario Agricultural College, Guelph, gave practical addresses on "The Establishment and Care of Lawns," on "Co-operative Spraying," and on "Kitchen Gardens for the City." Mr. John McP. Ross, of Balmy Beach, Toronto gave interesting talks on "Ornamental Trees and Shrubs," and on "Perennials." Dr. Bethune of Guelph, delivered an instructive lecture on "Fungous and Insect Pests." Mr. Wm Hunt spoke on "Flowers, Annuals and Bulbs," and "House Plants."

Among the many good things that the Ottawa Horticultural Society is doing to advance the interests of general horticulture is the offering of a prize of \$50 for a seedling apple hardy enough for the Ottawa Valley.

Bordeaux Injury

Editor, THE CANADIAN HORTICULTURIST:—In the May issue of THE CANADIAN HORTICULTURIST, I noticed the comments of Mr. R. J. Messenger, of Nova Scotia, in regard to Bordeaux injury. The injurious effect of the Bordeaux, is seen both on the leaves and fruit of almost all our fruits, especially the apple. It varies from a slight russetting of the fruit to a deep cracking and malformations due to the resistance set up by the injured texture of the epidermis.

The leaves, when slightly injured, show brown spots, and, as the degree of injury increases, they become yellow, and eventually fall. There is no russetting of leaves, as suggested by Mr. Messenger, and the spots are very much like those caused by the fungi belonging to the genera, *Phyllosticta* and *Venturia*.

There is not the slightest doubt that

Bordeaux mixture does have an injurious effect on the apple. This appearance and intensity of the malady is closely related to atmospheric conditions and, to a certain extent, to the variety of fruit. The injury is caused by the toxic effect of the copper salts. These salts enter the tissues of the leaves and fruit, destroying the tissue and disabling their function.

This malady appears to have its greatest development when the weather is rainy with intermittent sunny durations, during the period which follows the falling of the blossoms, and until the fruit is the size of marbles. As the fruit and leaves grow older, the tissues harden and seem to become less susceptible to the toxic action of copper salts. With these points in view, it seems necessary for us to graduate our sprayings by lessening the percentage of copper in that spraying which is applied during the most susceptible stage of development of the fruit.

The fruit grower must not become awed at the idea of doing a great deal of damage in using Bordeaux mixture. On the contrary, in nearly every case, the good derived from a thorough application of Bordeaux, is always beneficial, and its injurious effects are more than balanced, except in a few cases. To those who have noticed Bordeaux injury in their orchards, I would suggest that they use 3-3-40, and poison formula, after the blossom has fallen, and if the injury still continues, to appear, omit spraying with Bordeaux, and only spray with the poison, but this step should only be taken where the injury is great.

With regard to the use of lime in the excess with a view of controlling or preventing this malady, I might say that I heartily believe, with Prof. Hedrick, that an excess of lime has no beneficial results, for our worst case of injury followed applications which contained a great excess of lime. Mr. Hedrick, in his bulletin on this subject, says that Bordeaux injury greatly depreciates the keeping qualities of the fruit. This depends entirely on the degree of injury, where the fruit is fairly well russeted. I have found it keeping splendidly on ordinary storage, and this in the early part of March. However, where the injury is severe, and the fruit is cracked, it does not keep. The effect of Bordeaux injury on the keeping qualities of apples for commercial use varies with the degree of intensity of the malady, and in ordinary cases has but little effect, but in the case of long storages for home consumption, the effect would be marked.


In concluding, I might say for the benefit of Mr. Messenger, that if he thoroughly understood Prof. Hedrick's excellent treatise on this very important subject and one which is destined to cause the apple grower considerable anxiety, he will be easily convinced that the treatise contains valuable information, which only needs careful observation to be verified by any grower.—T. B. Revett, Department of Agriculture, Toronto.

Choice gladioli, lilies and begonias given away. See inside back cover.

We are pleased to say that we share your views in regard to the value of THE CANADIAN HORTICULTURIST as an advertising medium. The results that we have secured, have been highly satisfactory. An enquiry came to hand quite recently from France, it was preceded by several from England.—Luke Brothers Company, Montreal, Que.



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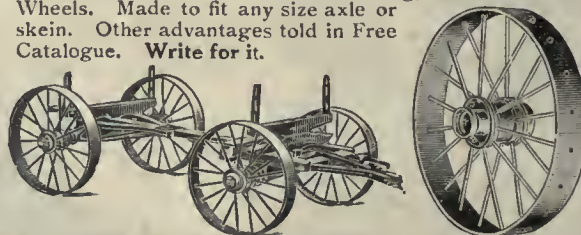
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The Canadian Horticulturist

Vol. XXXI

JULY, 1908

No. 7

Peach Culture, Thinning and Marketing*

Prof. W. S. Thornber, Pullman, Washington

AFTER the land is given over entirely to the peach trees, regular cultivation should commence as soon as possible in the spring, either by thorough plowing or by disking and cross disking until the soil is well pulverized. The cultivation that follows this will be of the nature of surface work to kill the small weeds, maintain the dust mulch, and conserve moisture. Nothing can take the place of clean tillage in the orchard during the early part of the season.

COVER CROPS

Practically all soils may be materially improved by the judicious use of cover crops. The crops, whether of rye, vetch, Canada peas or even corn, should be sown about the middle of August and permitted to grow or at least remain on the surface until early in May when it can be plowed under to add food and humus to the soil. By sowing as late as the middle of August no injury is done to the growing fruit crop, while the growth of the trees is checked and the wood is hardened off before the winter comes.

THINNING THE FRUIT

One of the hardest tasks for the amateur to perform is to thin sufficiently. It seems like a great waste of energy to grow a crop of young peaches to the size of small prunes and to then deliberately pull off from one-half to three-fourths of them. However, he soon learns that peaches, four to six inches apart, are close enough for the best results.

We must realize that a tree can produce a certain amount of first class fruit and, if more be permitted to grow, the size of the fruit must be reduced. It does not cost any more to pick the fruit at one time than it does at another. It is much easier to handle, pack and market a few large nice peaches than it is to deal with an equal weight of poor, small, hard, unsaleable fruits.

Western horticulture is frequently called the new horticulture and truly is

this the case it for no other reason than the way we harvest and market our crops. The barrel, the sack and the basket are fairly things of the past and now our crop goes to the market in neat attractive, beautifully labelled boxes and crates of the most convenient size possible for the grower, commission man and consumer to handle.

HARVESTING AND MARKETING

Probably no crop grown requires more care than the harvesting and marketing of peaches. The least scratch or bruise soon shows up to the disadvantage of the crop. Means should be provided to eliminate as far as possible all these defects. The picking should be done under a competent orchard boss whose duty

Wonderful Progress

I am much pleased with the appearance of THE CANADIAN HORTICULTURIST and with the character of its articles. It has made wonderful progress during the past two years both in matter and arrangement. Although well acquainted with the publication from its inception, I have never seen it so satisfactory as now.—B. Gott, Strathroy, Ont.

it is not only to direct the work but also to see that the fruit is not allowed to drop into the picking receptacles, but rather is gently placed in as one would handle eggs.

The picking receptacles may be buckets or baskets; however, most of our growers prefer a burlap lined basket that will hold from twenty to twenty-five pounds. The fruit is picked in these baskets, loaded on flat-topped heavy spring wagons and hauled directly to the packing house where it is carefully graded, wrapped in paper, placed in boxes which hold about twenty pounds, and at once nailed up ready for shipment. After the fruit leaves the tree the sooner it is packed for market the better condition it will be in. A few growers

grade their peaches into three grades known as "Fancy," "A" and "B." The boxes of "Fancy" contain from 44 to 64 fruits, while "A's" run from 64 to 80, and "B's" from 80 to 90 fruits. Of course this requires time and skill but this is the system that is making our western fruit sell.

One of the most important factors for the selling of fruit is the local union or association. Every community that raises fruit of any kind should organize and procure these benefits.

The cannery is another important adjunct. It is the only reasonable way to economically handle the over-ripe and poor fruit, and while it may be apart from the association, yet it need not be and usually it is best not, providing that perfect harmony exists between the management of the two concerns.

INSECT PESTS AND PLANT DISEASES

The insect pests and plant diseases that are bothering our peaches are not numerous. They should be carefully guarded against, however, in order to avoid serious injury from their attacks before curative means are used upon them.

Up to the present time, I have never seen or heard of a case of the much dreaded "peach yellows" in the west; however, it may exist in an unnoticeable condition in some of our large districts, simply waiting for proper conditions to develop it. The greatest possible care should be exercised to keep this, as well as other injurious pests, from once securing a foothold in our orchards. Two of our chief pests are as follows:

PEACH LEAF CURL

The peach leaf curl is practically our only well distributed, serious plant disease of the peach and while its attacks are more or less serious on some varieties than others, yet it works severe injury to all sorts. This disease is too common to need description and may be readily kept under control by a thorough spraying in March with a standard solution of Bordeaux or sulphur-lime wash.

The peach tree borer is another troublesome insect that we must be constant-

*Extracts from a paper read at the last convention of the Northwest Fruit Growers' Association held at Vancouver.

ly watching for in order to prevent it from gaining a foothold in our orchards. The best remedy that we can apply to them is to dig out the worms both fall and spring and either keep the trunk banked with earth during the growing season or whitewashed with a thin coat of cement, which prevents the young from gaining access to the tree.

Notes on Cherries

T. S. Cornell, St. George, Ont.

Cherries will thrive in almost any part of Canada by having the land well drained. They will not stand wet feet. The sour cherries are more profitable than the sweet, and of the many kinds we prefer the Early Richmond and large Montmorency.

Cherries like other fruits have enemies. The black knot is one; it has to be checked in its green state. I also find the plum curculio attacking them of late. Spray the same as for plum.

We begin picking before they are very ripe, in order to have them all marketed in a firm state, leaving all the stems possible on the fruit. We find it better to pick in small pails, and to empty into the baskets ready for market. We handle all our cherries on the local market getting the middlemen's commission also. There is no more profitable fruit to grow at the present time than the sour cherry.

Root Pruning for Fruit

Edward Lane, Galt, Ont.

If a tree is making too much wood growth, and is not bearing what might be considered a fair crop, it should be deprived of a few of its roots. In order to illustrate the value of this, I will give one of my experiences along that line. A few years ago, I received, as a premium with THE CANADIAN HORTICULTURIST, a Wealthy apple tree and, if my memory serves me right, it was of one year's growth and about twelve or fifteen inches high, branched out as a dwarf and so I let it remain. It grew to be eight feet high and six feet in width and with no sign of fruit. I said to it one day, "You have got to stop this. I don't want so much wood; I want fruit." I dug a hole about thirty inches from the trunk and then tunneled in under it and there I found four large roots. I cut these off and put the soil back again. The next year, I had to prop up every branch, but one on the opposite side to where I dug the hole and in the fall, I had about three bushels of splendid apples.

My boys found they were good to eat and as a consequence the branch nearest the wall was stripped of its load quite a while before the rest. The next

year, the branch which did not require to be propped and the one which the boys stripped, had to be propped. Altogether, the tree bore about one and one-half bushels and the third year it bore two bushels. They were as good a sample as one could wish to pick up. This instance is not a solitary one but one of scores, and always with about the same results. To my knowledge, it has been practised through three generations, I myself having been taught it over 40 years ago by my grandfather, who was a nurseryman and knew whereof he spoke.

Fertilizers for Orchards

S. C. Parker, Berwick, N.S.

For our sixty acres of orchard, young and old, we use commercial fertilizers entirely. We use ground bone, acid phosphate and muriate of potash. The accepted method with us is to apply fertilizers in early spring, cultivate thoroughly until July, then sow a cover crop. Five hundred pounds of acid phosphate and two hundred of potash per acre is about the average amount used, with fifteen pounds clover, either Mammoth or Crimson.

We use considerable mixed fertilizers on small fruit and garden truck, finding them more readily available. For these we buy a high grade potato fertilizer about four per cent. nitrogen, eight per cent. phosphoric acid and ten per cent. potash. Probably it would be cheaper to compound our own, but time is often worth more than money. As our stock comprises only one cow and teams necessary to work the orchard, stable manure does not cut much figure in our business.

Fameuse vs. McIntosh

R. W. Shepherd, Montreal

McIntosh Red can never replace Fameuse, as to quality, for a dessert apple. In the best houses in England, where the two kinds have been tried, the verdict has always been in favor of Fameuse, and I speak from experience, because I have a large clientele of that class of customers.

In England, apples are more generally used at dinner for the dessert course than they are here, where we get oranges, bananas, grapes, and so forth, very cheap. The medium size and beautiful appearance of the Fameuse, apart from its peculiarly delicate high flavor, and delightful perfume, brings it into great demand. The McIntosh is rather too large, and often irregular in shape, to be as popular a dessert apple for the table.

To get size among fruit trees cultivate often and thoroughly.

Canadian Pears

W. T. Macoun, Ottawa

The number of good pears which have originated in Canada is not very great, mainly for the reason that the pear districts are more limited in extent than the apple, and that chance pear seedlings do not stand as good a chance of surviving as apple seedlings. Two varieties only need be mentioned, namely, Dempsey and Ritson. The following descriptions of these pears are taken from "The Fruits of Ontario":

DEMPSEY

The Dempsey was originated near Trenton, in Prince Edward County, Ont., by Mr. P. C. Dempsey. It was produced from a seed of a Bartlett, fertilized with Duchess d'Angouleme. The fruit is firm, and consequently would ship well. Tree, vigorous and productive; fruit, large, oblong, obovate, pyriform; skin, smooth yellowish-green, with a brownish-red cheek in sun; stem, about one inch long, set in a fleshy base, and with almost no cavity; calyx, nearly closed in a moderately deep uneven basin; core, small; flesh, white, fine grained, tender, almost melting, with sweet, delicious flavor; season, late October to November.

RITSON

The Ritson is a delicious dessert pear, which is worthy of a place in every fruit garden. It is not surpassed for canning or for pickling, having an aroma and peculiarly agreeable flavor. It originated in Oshawa, Ont., with Mr. W. E. Wellington. In response to our enquiry, Mr. Wellington writes: "It was my grandmother, Mrs. John Ritson, who planted the seeds from a pear which had been sent to her from Boston. The tree has always stood on my grandmother's homestead as long as I can remember." The tree is a strong, healthy, upright grower. The original tree is now of immense size, probably over thirty feet high, and about 100 years old, an annual bearer of nice, evenly formed fruit. The fruit is medium in size, obovate pyriform, usually one-sided; color of skin, yellow, heavily shaded with golden russet, and numerous minute white dots of a darker russet; stem, one inch long, often inserted in a fleshy protuberance, and at a slight inclination; calyx, open wide in a very shallow, regular basin; flesh, creamy white; texture, fine, tender, buttery, juicy; flavor, sweet, delicately perfumed; quality for dessert, very good to best, and for cooking, very good; value, market, promising for a special trade; season, October.

Do not forget to remove the blossoms from newly-set strawberry plants.

Irrigation in British Columbia*

A. E. Meighen, Irrigation Engineer, Kamloops, B.C.

ABOUT fifteen years ago, men became alive to the possibilities of the valleys and benches for fruit growing. In several localities, tracts of range land were bought up by companies, subdivided into five, ten and twenty-acre lots and irrigation systems were constructed. These tracts have been put on the market and have been rapidly settled, adding greatly to the development of wealth of the interior. The rapid development and marvellous results obtained on these tracts are incredible to persons not familiar with the benefits of irrigation.

Land which was a howling waste of sage brush and bench grass, and supporting a few head of stock, has been converted, in a few short years, into a community of happy and contented homes, where the most extensive farming is practised, every foot of land being highly cultivated, with the result that a family is maintained in comfort and almost affluence on ten acres of land.

THE FRUITLAND ESTATE

A notable example of the results obtained by a practical policy is the "Fruitland" estate of the Canadian Real Properties Co., at Kamloops. This estate comprises 6,000 acres lying along the North and South Thompson rivers. This land is characteristic of the dry belt, of a gently undulating surface, lending itself admirably to irrigation, free from rock, stone or timber—ready for the plow. The soil, being an alluvial deposit, is remarkably rich, and produces immense crops upon the application of water.

The tract was purchased by the company about four years ago, and the company immediately set to work to subdivide the land into small lots of about ten acres, and to construct their irrigation system. A main canal was built seventeen miles in length along the foothills bordering the North Thompson as far as Jamieson Creek, the main source of water supply. Besides their water rights in Jamieson Creek the company controls all the water in Noble, Gordon and McQueen Creeks, whose waters are diverted into the main canal as required. To make assurance doubly sure this company, during the last two years, has been raising dams on the lakes in the mountains and thus storing water to provide against a possible shortage in an exceptional dry season.

After the construction of the main canal the distributing laterals were built. They were planned in such a way that

the water is delivered to each lot by a separate gate, each man's allowance being measured accurately by means of a weir.

Two years ago the system was ready for operation and the property was put on the market. The land has sold rapidly and steadily, mostly to people who settled on their land, with the result that what was yesterday an unproductive waste, is now a thriving community where those who were fortunate enough to settle are already realizing handsome returns from small crops.

SOME FRUIT RETURNS

It is the custom of the settlers on this tract, while waiting for the trees to come into bearing, to plant between the tree rows small crops, such as potatoes, tomatoes and berries. The profits from these small crops have been very satisfactory as the following figures show.



Some British Columbia Peaches from a Three-Year-Old Tree
Grown in Orchard of Mr. R. H. Agur, Sumnerland

Last year potatoes netted at the rate of \$75 an acre; strawberries \$600; and tomatoes, \$1,000.

ROOM FOR GOOD SETTLERS

These small irrigated fruit farms will in the near future be a big factor in the development and wealth-production of this province. All that is required is settlers of the right kind. British Columbia has been specially favored with the conditions that draw the very best people. A climate unequalled in Canada, magnificent scenery, splendid hunting and fishing—these are the considerations which will draw people of culture and people of wealth to the province, who, at the same time, will find opportuni-

ties for investment which will give returns unsurpassed anywhere in the old or new world.

Chickens in an Orchard

Is there any danger in keeping chickens in an orchard that has been sprayed? Would fowls keep down the pests without need of spraying?—A. T., Hants County, N. S.

The chickens can be kept in a sprayed orchard without injury, and they will help to keep down certain pests, such as curculio. They will not keep down all the insect pests, and of course can have no effect whatever upon fungous diseases, such as apple scab, bitter rot, and so forth. Keep the fowls in the orchard, and it will help both the chickens and the trees—but you will still need to spray.

Marketing Currants

Wm. Fleming, Owen Sound, Ont.

Currants for shipment should not be so ripe when picked as for home market. Every step in the operation of harvesting and marketing should be

intelligently made. The fruit should be perfectly dry and not too ripe.

When picking black currants, the clusters should be stripped. Those of red and white currants should be pinched off the bush carefully, so as to prevent all possible bruising. The picker should gather the fruit in small baskets and deposit it in the shipping basket, which should always be kept in the shade and disturbed as little as possible.

Ship the fruit soon after picking, as a day's delay may ruin a shipment if the weather is unfavorable. The fruit should be shipped in eleven-quart baskets, which should be clean and new. Fill them according to the golden rule.

*A continuation of the article on Irrigation that appeared in the June issue.

Lawn and Garden Hints for July

DURING the hot days of July the vegetable garden will require constant cultivation, so as to keep the surface soil loose. This loose earth mulch on top of the soil around all growing crops, is a necessity in hot weather.



Perennial Candytuft—Iberis Sempervirens

Every garden requires a certain amount of water. There are various ways of applying same. Give plenty when applying, as simply sprinkling does more harm than good, in that it is apt to form a crust. Water at night and stir the soil in the morning.

VEGETABLES AND FRUIT

Lettuce seed does not germinate well in hot weather. It can be grown by sowing the seed in a moist, shady place. If no shade is available, a cover can be made of boards or cheese cloth. Moisture in plenty must be supplied, as lettuce is easily affected by dry weather. In a fairly cool spot, sow early varieties of peas for use in September. Sow Eclipse beet for fall use. Cucumbers for pickles may be sown. Kale may be sown now for setting out later. Parsley has



A Well-grown Clump of Peonies

At residence of Mr. E. C. Morris, Brown's Nurseries

time to make a top if sown this month. The first week in July is not too late for planting corn. Plant some bush beans. Now is the time for sowing winter radishes. Plant celery.

If your new strawberry plants are still blooming, remove the blossoms at once.

You will be glad when fruiting time comes next season.

As soon as the old strawberry patch is done fruiting, plow or dig the plants under. Best results are obtained by taking only one crop and having a new one coming on. Sow some red clover or vetches where the strawberries were. These plants make nitrogen cheaper than you can buy it.

If your peach or plum trees are overloaded, thin the fruit. Better fruits will be the result.

Remove the suckers from fruit trees as fast as they appear. Wash the trunks of apple trees for borers. Use one pint of crude carbolic acid, one quart of soft soap, two gallons of hot water, and mix thoroughly. Apply with a cloth or soft broom.

For higher quality in raspberries and

Send photographs of your flower garden and lawn for publication in *THE CANADIAN HORTICULTURIST*.

Anemones from Seed

How soon will anemones bloom from seed?—Mrs. McL., Kootenay Co., B.C.

It will take two seasons' growth at least for anemones raised from seed to flower.

Worms at Rose Roots

Kindly tell me how to keep worms away from the roots of rose trees. I have tried so hard to grow them. I find that there is a lot of worms in the ground and around the roots.—Mrs. J. H., York Co., Ont.

I presume it is the common garden worm mentioned, although these seldom injure rose bushes materially. The best



A Home-made Border of Annuals and other Things in a Back-yard

At residence of Mrs. John McKay, Toronto

blackberries, allow the fruits to remain on the canes until well matured. Continue cultivating around newly-planted bush fruits.

THE FLOWER GARDEN

Keep the surface soil in the flower garden constantly stirred. A light scuffle hoe will do the work easily.

Stake and tie all plants that require support. Use neat stakes, and soft twine.

Remove all decayed flowers regularly. They exhaust vitality, and are unsightly.

For sunny locations, use portulacas and nasturtiums.

Water the pansy beds frequently. Keep the bloom well cut, so that no seed can form.

Pinch back dahlias, cosmos and chrysanthemums. This will make them compact and full of flowers.

Shade the soil around aster plants by mulching with lawn grass clippings.

It requires more than one season in which to attain success in the cultivation of flowers.

remedy is an application or two of lime water. The lime water is made by slaking and mixing about one pound of fresh lime in two gallons of water. When the solution is mixed allow it to stand and settle. Two applications are usually sufficient, at a week's interval between each application, to have the desired effect.—Wm. Hunt, O.A.C., Guelph.

Get out of a plant all there is in it. Study its habits and needs and treat it accordingly.

In the June issue, the address of Mr. W. A. Wood, the owner of the rockery illustrated on page 126, was erroneously published as Toronto, instead of Hamilton.

One cannot have a fine lawn if there are many shrubs on it. The lawn proper should be lawn and nothing but lawn. Place the shrubs where they will not be at war with the sward.

Flowering Shrubs and Their Care*

J. McPherson Ross, Toronto

FLOWERING shrubs are a class of plants that give permanent and satisfying results to the grower after once being planted. There are so many varieties that it would be impossible to describe them all in a single paper as they would fill a catalogue besides the list already known, many new species and many varieties of old species are being continually introduced by nurserymen. As a rule the majority of them are of the hardiest nature. The cultivator need not be afraid of any which I shall mention being killed by the severest winter weather, a fact that we can appreciate here in Canada, also that they thrive equally well in the same situations and in the same soil.

PREPARATION OF SOIL

Like everything else that we grow, we must go to some trouble in preparing the soil thoroughly where shrubs are to grow, in order to have the best results as usually after once being planted they are not disturbed for many years and then only perhaps to thin them out or to move one not planted in the position best suited. So much is continually dinned into our ears about preparing the soil well for planting anything, that it seems unnecessary now to repeat it; but to have good healthy shrubs with plenty of fine flowers, it pays to drain it and to apply plenty of good strong manure thoroughly and deeply dug in.

SHRUB PLANTING AND COMBINATIONS

As a general rule shrubs are usually planted too thickly and afterwards become an indefinite hedge when the individuality of each shrub is lost in the mass. Unless, intended to make a hedge or close border of one variety, a mixed collection should not be planted closer than six feet. This may seem a great distance when planting the small shrubs but a few years growth will show the necessity, besides allowing the plant to develop its characteristics evenly all around. The proper rule is to avoid violent contrasts and to place each where the color of the flowers and foliage will be most effective and the height of the shrub at maturity can be seen to the best advantage.

In a mixed border the planter is advised to place the tall growing kinds, such as the large-flowered syringa and lilacs at the back, wiegelias, hydrangeas, and so forth, in the middle and the dwarf sorts, such as *Deutzia gracilis* and *Spiraea Fortunei* in the front. In a border of this character, it is a good plan to mix in herbaceous plants, bulbs, and so

forth, which if properly assorted as to flowering period, will give, an endless show from early spring till late fall.

Where there is plenty of garden room a fine effect is produced by massing three or more of one kind together, thus presenting a show of bloom that is satisfying, to say the least of it. For example, imagine a half dozen *Spiraea Reevesiana* or *Spiraea Van Houttei* alongside a clump of the diameter of the scarlet quince, *Pyrus Japonica*, both in flower together, or a group of white lilacs, five to eight feet high, in full flower in the back ground with a clump of scarlet quince in bloom in front; the effect is magnificent.

In this way, a group of *Prunus cerasifera*, var., *Pissardi* or *Berberis vulgaris*, var., *atropurpurea* against a mass

ly necessary to restrain some growth, never do it till after the flowering season is over. Above all never indulge in this senseless shearing in round forms, as we see too often practised in many places; the custom is positively hideous and destroys all the grace. The hydrangea is the only shrub that is benefitted by cutting well back and this should be done in early spring.

Care of Azaleas

Last fall the Lindsay Horticultural Society distributed to its members a number of azaleas, imported from Germany. Many of these plants flowered very well during the winter. The owners are now wondering how best to preserve their plants to again secure a good bloom. An answer will be appreciated.—F. R., Victoria Co., Ont.



Corner of Forest and Ornamental Tree Plantation at Quebec Experiment Station

of golden elder, is quite striking in color effect and makes a picture not easily forgotten and in the fall of the year, a hedge of *Hydrangea paniculata*, in plumed masses of creamy white, flanked in front by a bed of scarlet gladiolus, makes a lasting show of color that is worth all the trouble to produce.

WHEN AND HOW TO PRUNE

Flowering shrubs require little if any of what may be termed "pruning." The plants naturally grow in such graceful forms that much pruning is not necessary. Besides topping back an occasional extraordinary shoot or cutting out some dead branch or superfluous suckers, nothing much else is needed. If actual-

Azalea plants should be stood out-of-doors in the pots about the middle of June in a partially shaded position, north side of a house or fence preferred. Stand pots on coal ashes to keep out earth worms. Spray the foliage, especially on the under side of the leaves, every day with clear water or soapy water to keep down red spider. The red spider is a small insect mite that attacks the under side of the leaves causing them to drop. A dusting with powdered sulphur when foliage is damp also helps to keep down this pest. Take plants indoors early in September. Syringe frequently as before mentioned. Azaleas like a peaty soil free from lime.

* Extracts from an address delivered at a recent meeting of the Toronto Horticultural Society.

Fertilizing a Lawn

In the April issue of THE CANADIAN HORTICULTURIST appeared a short article on, "How to Have a Good Lawn." The writer advised a "liberal sprinkling of good commercial fertilizer." Please tell me what is a good commercial fertilizer for a lawn. The grass on my lawn is showing signs of wearing out. It tends to become red in spots and that early in the summer. How much of said fertilizer should I require for a lawn about eighty feet square?—T. H. R., Grey Co., Ont.

At intervals of two or three weeks, during the early part of the season, top-dress the lawn with nitrate of soda, at the rate of one-half pound per square rod. Two applications of this will be sufficient. Later, give an application of bone meal, two parts, superphosphate of lime, two parts, muriate of potash, one part, and apply at the rate of five pounds per square rod. Before applying these fertilizers, it is best to rake the surface of the lawn. The full benefit of the fertilizers is realized most when they are applied just before a rain.

The Common Toad

Tennyson D. Jarvis, O.A.C., Guelph.

Very few realize the immense good done by the common toad in consuming insects and other destructive arthropods. He is a useful friend and his presence should be encouraged in every garden. In France, the gardeners are glad to buy toads in order to have them as insect destroyers.

Most of the old superstitions regarding the toad, such as the possession of a jewel in its head, and that warts are produced on one's hands from handling, and so forth, have been pretty much done away with. He has not a poisoned fang or gland in his mouth, but on his neck may be found a wart-like mound which secretes a very distasteful fluid to defend him against dogs and other enemies. The roughened excrescences on the surface of the toad are glands which secrete a fluid to moisten the skin.

A few words as to the life-history of the toad may not be out of place. In the spring of the year they go to pools and ponds for breeding and the air is filled at that time with the shrill purring which is so characteristic of the early spring. The eggs, unlike those of the frogs, are laid in strings of gelatinous matter wound about aquatic or submerged grass. These eggs hatch after a while into tadpoles or "polliwogs" much resembling the tadpoles of the frogs. These so-called polliwogs, after a while, lose their tails, acquiring first hind legs and then fore legs while their tails are disappearing. Losing their gills they finally breathe entirely by means of lungs. Then they emerge from the water in large numbers. They avoid the sun and both old and young are seen at night-

fall, or sometimes in large numbers after a rain, at which latter time their extreme abundance gives rise to the popular belief that "it is raining toads."

The number of insects consumed by an adult toad is almost incredible. At sunset he comes out from his resting place and starts on his regular tour over lawns and through gardens. He is always hungry and eats four meals a day or rather his stomach must be filled and emptied four times a day. He hunts and eats almost incessantly, therefore, in order to get as much as he needs. The tongue of the toad, with which he catches his food, is well adapted to its work. It has a sticky surface from which escape of prey is impossible, and it is fastened at the front instead of the back. The latter fact makes it possible for the toad to throw the tongue well out of the mouth. The toad eats almost all kinds of living things that are out at night. In a number of stomachs examined at Guelph the following kinds of insects were present: ants, spiders, crickets, mosquitoes, flies, moths, beetles and sowbugs.



A Home-made Rockery

The photograph was kindly furnished by Miss M. E. Bellerby, Craigleith, Ont., who describes the rockery as follows: "It is filled with trailing plants, such as yellow myrtle, canary bird flower, verbena, and California poppy and has a yucca in the centre, against a background of large double sun flowers. It is built up of round stones to a height of about three feet and filled with good garden soil. I give it an abundance of water as the stones seem to draw the heat and it dries out quickly. The large flat stone in the front is a petrified mud turtle which I found in an old creek bed."

Making a Lawn

I have a small piece of ground near my house that I want to make into a good lawn. Most of the soil was taken from the cellar when building. Kindly tell me how I can best handle the ground so as to produce a good, permanent turf.—E. A. F., Kings Co., N. S.

The soil from the cellar should not be left on the surface. It should be taken away or used for filling undulations. The best soil for a lawn is a rich, retentive, loam. A few loads of this spread evenly on the surface will produce much better results than if you tried to make a

lawn from the soil already at hand. Some kind of fertilizer, such as bone meal, wood ashes, and nitrate of soda, should be worked in. Have the surface soil well pulverized and level it smoothly.

Sow the seed when the soil is freshly distributed. Use plenty of seed and sow it evenly. It is best to sow one-half of the amount one way, and to cross the patch with the balance. After sowing, rake and roll.

Good lawn mixtures can be secured from any reliable seedsmen. A home-made mixture can be prepared from Kentucky blue grass, red top and red clover, equal parts by weight. Use at the rate of at least three bushels to the acre. The amount required can easily be determined by getting the area of the plot in square feet, and dividing same into the number of square feet in an acre, which is 43,560. Divide the result into the quantity required for an acre, and you have the amount necessary for the plot.

Sweet Potatoes

Walter T. Ross, Picton, Ont.

In the spring of 1906, I sent to Maryland for some sweet potato sprouts. They came by mail in fine condition, well rooted, and healthy plants. I set out about seventy-five plants, on May 24th, giving as many more to farmers in different parts of the county, where I knew the soil and conditions were favorable to growing them. Mine proved very satisfactory. I must have had over a bushel, the largest one weighing one pound. I put a dozen on the scales and they weighed six and a half pounds. The farmers were well satisfied with their experience, which was successful.

In the spring of 1907, I set out nearly 500 plants, but on account of the backward season and late frosts, I could not plant them until June 10th. The season was much shorter, and there was less hot weather than the previous year. While the vines grew vigorously, the yield of potatoes was unsatisfactory. The largest I had was one-half pound; but very few attained a satisfactory size. If the season had been three weeks longer, as the previous one in 1906, I see no reason why I should not have had ten bushels, for which the dealers here would have paid \$2.00 a bushel. This proves that with an early spring, a hot, dry summer, the yield will be satisfactory; otherwise the result will be a failure.

The plants should be set out in rows, three feet apart, and fifteen inches apart in the rows. The best fertilizer is one having a small amount of nitrogen, and a large amount of potash. I found the Yellow Nansemond the most satisfactory variety of the four or five different varieties that I grew.

Cacti For Flower Lovers

J. H. Callander, Peterboro, Ontario

THE general idea of a cactus goes no farther than the common prickly pear, the crab or Christmas cactus, the king cactus, or case-knife cactus, or possibly a night blooming cereus. There is no special beauty



Cereus Colubrious

in the plant itself of any of those mentioned. If it were not for their fine blooming qualities they would not long be given a place in any conservatory or window garden. Flower growers, who have seen only such specimens, will be surprised to know that there are over 2,000 different varieties, more greatly varied in form than any other class of plants in the world.

The genus includes delicate-stemmed branching tree forms, with stems about the size of a goose quill, and making densely branched shrubs, as well as the immense giant cactus, which towers in the form of a branchless tree to a height of forty to sixty feet, with a massive trunk two feet in diameter. These are landmarks in Southern Arizona and Mexico, where they are not molested, being many tons in weight, and covered with very long, pearl-covered spines.

Still other forms are globular, with as great contrasts as in the tall growing sorts. The smallest is the dainty button cactus, from one-half to an inch in diameter, covered with spines so fine and silky as to appear like lace spun by an industrious spider, while in the same category are found enormous globes three feet in diameter, and bearing stout spines, which are really the most attractive part of the plant; some, as on the fishhook cactus, having perfectly formed hooks, three to six inches long, and cap-

able of lifting a great weight. Others wave and twist over the plant, and display brilliant colors of yellow, all shades of red, brown, purple, black and white, some plants having several colors intermixed in regular form, making the effect most pleasing.

Enamored of the grotesque as nature has produced it in this family, the fancier has conceived the idea of still further adding to their odd features by grafting one upon the other, and in this way many highly valued additions to a collection are made. Their fleshy structure makes the cactus the best of subjects for experiment in this line, and the operation is very simple. Slender growers are cut to a wedge-shape, and inserted in the split top of the stock to be used, held in place by running a couple of spines through, and tied up firmly. In a few days a union is formed and



Echinocactus Cornigerus

growth starts at once, and is much more rapid than when the scion is grown on its own roots. Globular sorts are cut off square near the bottom, set on the top of a columnar stem of a cereus, and bound by a string tied over the top.

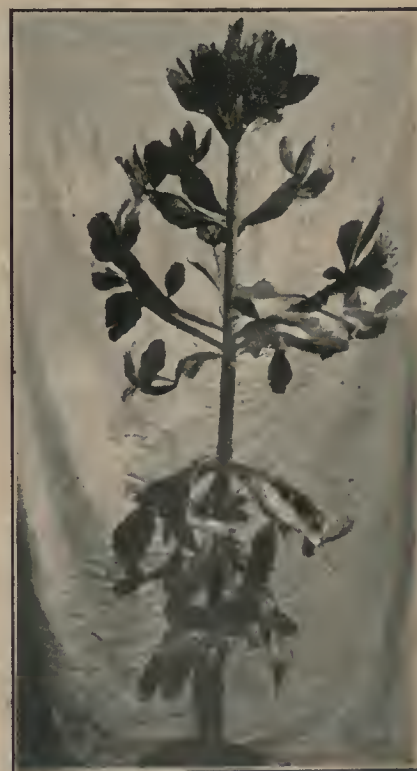
By these means, curious and handsome specimens are made; drooping sorts are set on tall stems, and present a graceful appearance, also blooming more freely, while the effect of a round, heavy spined Echinocactus, supported on one or more straight stems of stout cerei is very curious. It is to this process that the success attained in growing fine plants of the crab, or Christmas cactus, is due, the stock used being an exceedingly rapid grower, the Pereskia.

Hybridizing has also been practised to a large extent in some branches, particularly the Phyllocactus, many European fanciers possessing several hundred distinct varieties, all tracing back to the two or three original sorts found in their natural state. Their home is in the al-

most perpetual dampness of the Amazon valley, Brazil, where they grow on trunks and branches of trees, their roots clinging to the moss. Thus, this family of cacti live in entirely different conditions from others, and require somewhat different treatment.

While the fancier who makes a collection of cacti, tries to secure the oddest in form, regardless of bloom, yet this is a feature that will well repay the little care necessary to produce them. The most gorgeous day bloomers are the Epiphyllums or crab cactus, in many shades of crimson and red with white shadings; the Phyllocacti, which bear handsome flowers, from two to ten inches across, ranging in color from pure white, pink, violet, scarlet to purple, a truly grand showing in early spring; some of the cerei, such as the "Rat-tail," "Rainbow," and others; and the Echinocerie, low growing clusters, which are resplendent in spring with exceedingly beautiful flowers of very large size, bright pinks, yellows, reds, purples, and so forth, often six inches across.

But it is the night bloomers that give us the really notable flowers, not only of immense size, but magnificent



Opuntia Braziliensis

in form and texture. The famous night-blooming cereus, itself a slender climber, less than an inch in diameter, first puts out its woolly buds, that gradually increase in size, until they reach out six

or eight inches from the stem, the outer end the shape of closed bud, until at length the final day for the completion of its wonderful development arrives, when a magical change is seen,—the bud grows and swells, so quickly, that it can almost be seen to expand, and in a few hours there is the promise of a mighty effort when darkness comes. Then is the time to watch the mammoth bud awaken to its short but gorgeous

life. The tip bursts open, the outer sepals of yellow and brown slowly uncurl, disclosing to view an immense cup-shaped form of purest white petals, within which nestle the hundreds of down-tipped stamens, with the prominent pistil standing well out. As it grows later the finishing touches are put on by the great flower, petals are shaken looser, the sepals curl further back, and there before us is the triumph of the

floral world—a night-blooming cereus in bloom, the flowers measuring twelve to fourteen inches across, and giving out a delicious fragrance that fills the conservatory or house. Is it to be wondered at, that when a cactus collector begins to discover the possibilities of his collection, he becomes an enthusiast on the subject, and by the unappreciative public is designated a "Cactus Crank."

Commercial Fertilizers: Nitrogen and Phosphoric Acid

Frank T. Shutt, M.A., Chemist, Dominion Experimental Farms

IN THE scope of this article, we cannot discuss the composition and merits of all the ingredients that may be employed in the compounding of fertilizers. We shall, therefore, select a few of the more important in each class.

NITROGEN

This element is at once the most costly of forms of plant food supplied by fertilizers, the most important from the market-garden standpoint and the easiest lost from the soil. It is the element that above all produces leaf growth.

For our purpose nitrate of soda (Chili saltpetre) stands first. The commercial article as sold for fertilizer purposes contains between fifteen and sixteen per cent. of nitrogen. This material is soluble in water and presents its nitrogen in an immediately available form. Within a day or two after its application, its effect can be seen on the crop. Excess of nitrate, that is, the amount over and above that which is taken up by the growing crop within a short time, may be and probably will be lost by drainage into the sub-soil, below the reach of the roots. Hence, small and frequent applications made as a top dressing to the crop during the earlier weeks of growth are more economical than one large dose at the beginning of the season.

SULPHATE OF AMMONIA

Sulphate of ammonia is another soluble nitrogen compound, though it does not yield its nitrogen to plant growth quite so readily as does nitrate of soda. It contains about twenty per cent. of nitrogen, and may be used as a source of nitrogen for market garden crops that have a somewhat long period of growth.

DRIED BLOOD

Dried blood ranks next in importance in nitrogenous fertilizers. It contains from twelve to sixteen per cent. of nitrogen, according to quality. It decays rapidly in warm, moist soils and is probably the most effective of all the organic forms of nitrogen.

Fish waste, tankage, wool waste, and a number of other forms of organic ni-

trogen are used by fertilizer manufacturers. Many of them readily yield their nitrogen to crops, while others very slowly furnish their nitrogen as food and hence are more lasting. As these materials are not on the market here, we need not discuss their relative merits. The original guano, formed of dried and concentrated bird excrement, the accumulation of centuries on certain islands in the Pacific, is no longer available. It was a strong forcing manure.

PHOSPHORIC ACID

Ground bone or bone meal has long been used and recognized as a valuable manure, particularly for mellow, moist soils. It will contain from twenty to twenty-four per cent. of phosphoric acid and two to four per cent. of nitrogen, so that with the addition of some potash compound, as wood ashes, or muriate of potash, a complete fertilizer can be prepared. The quality or value of a bone meal will depend largely on the method of its preparation; thus, steamed bone (that from which glue has been extracted) will be richer in phosphoric acid and poorer in nitrogen than raw bone.

Though bone meal does not contain its plant food in an immediately soluble, that is, available condition, its decay is fairly rapid in a warm, loose, moist soil. By the organic matter it contains, the soil is undoubtedly improved, and though not supplying food that can at once be absorbed by plants, bone meal may well find a place among the fertilizers used by market gardeners and fruit growers, especially for crops that have a long season of growth and do not require forcing.

SUPERPHOSPHATE

Superphosphate is sometimes called acid phosphate. It results from the action of sulphuric acid (oil of vitriol) on bones and all kinds of mineral phosphates as found in various parts of the world. This treatment converts the greater part of the phosphoric acid of the insoluble phosphate into a form soluble in water and

hence available to crops. Space will not allow us now to discuss fully the chemistry involved in this treatment of phosphates by acid, but there are several important points therein that are well worthy of the attention of those using fertilizers. It must suffice to say that superphosphates will ordinarily contain about fifteen per cent of water-soluble phosphoric acid. There will be always present a certain small percentage of phosphoric acid, known as "reverted," which, while not immediately soluble in water, is a useful phosphatic manure. There may be also unattacked phosphate, owing to insufficiency of acid or other causes. All superphosphates necessarily contain gypsum or sulphate of lime as a result of the action on this mineral phosphate.

Superphosphate is the phosphatic manure to use when we wish to hasten maturity as well as for crops with a short reason of growth and needing an immediate supply of soluble acid. From 300 to 400 pounds an acre is usually applied.

BASIC SLAG

Basic slag is another phosphatic manure now largely used. Its phosphoric acid is not soluble in water (though becoming available gradually to the soil), and therefore the fertilizer is perhaps better adapted to farm than market-garden crops. Nevertheless, it has been found particularly valuable for muck soils and soils that are sour and naturally deficient in lime and it is quite possible that market gardeners may be able to use it to advantage on such of those crops having a comparatively long season of growth. Good brands contain about seventeen per cent. of phosphoric acid. The usual application per acre is in the neighborhood of 500 pounds.

In the next issue of THE CANADIAN HORTICULTURIST the value of potash in the preparation of fertilizers will be dealt with.

Sow seeds in freshly stirred ground, as the seed is more liable to get a good start. Better crops will result.

Some Squashes and How to Grow Them

P. G. Keyes, Ottawa

NOT only is the squash one of the most nutritious and valuable of our garden vegetables, but, owing to the ease with which it can be grown, and the number of varieties in cultivation, it should prove of great interest to the amateur gardener. The summer varieties are ready for the table early in the season, while the winter sorts, if properly stored, and cared for, may be kept in perfect condition until May or June of the following year.

It seems strange that farmers and stock raisers do not better appreciate the value of winter squash as a food for stock. An acre of squash, costing not more to cultivate than an acre of corn, will produce quite as much food as the corn, and of a kind calculated to keep stock in the pink of condition during the winter months, when dry food is the rule rather than the exception. They are specially valuable for milch cows, adding greatly to the flow and quality of the milk. Even horses may be taught to eat them in a raw state. The writer has a Shetland pony that is as fond of a Hubbard squash as of an apple. As a winter food for poultry, it seems to supply a long felt want, and I would advise all fanciers to grow a "patch" of Hubbard or Delicious for their chickens, even if for no other purpose.

SOIL AND CARE

Almost any soil, if well enriched, will grow good squashes, but warm sandy lands, or sandy loams, are to be preferred. If to be grown on heavy soil, it would be well to start the seed in pots or boxes, two or three weeks before planting out. Strawberry boxes answer the purpose very well, as the bottom of the box can be cut off, and the plants set in the ground without disturbing the roots. For ordinary planting, dig a hole in the soil about three feet in diameter, a foot in depth, and fill up with fine old manure to within a few inches of the level. Mix well with the soil, and cover with two or three inches of earth, then plant the seeds, eight or ten in each hill.

After all danger from frost or insects is past, pull out all but the two strongest plants. I have found air-slaked lime, sprinkled over the plant, whenever the striped cucumber beetle appears, to be an excellent remedy for this pest. It is not so easy, however to cope with the cut worm, whose presence is only discovered after it has finished its work.

Moisture must be supplied to the roots during the season of growth, and not more than two or three fruits should be allowed to each vine. If large specimens are desired, all but one should be removed as soon as the fruit appears.

As a rule, it is not desirable that the vines should be allowed to root at the

joints, as this prolongs growth, and has the effect of keeping the fruits from ripening as early as they otherwise might, which is a *desideratum* where the season is short. This tendency to form roots has its advantages, however, one of which is that it prevents the vines from being moved or blown about by the winds, after the fruit has set.

VARIETIES

The varieties are so numerous that care must be taken to grow them separately, if they are to be kept pure. There is little danger, however, of the bush or summer varieties, mixing with vine or winter types, and even if varieties do mix, it is only in case the seeds of such mixtures are planted that the fact be-

Another excellent old variety is the Boston Marrow, light orange in color, with sweet-flavored yellow flesh—fine for pies. The Early Prolific Marrow is very attractive in appearance, and the flesh is thick, dry and sweet.

Essex Hybrid is of great value as a winter squash. The same remark applies to Fordhook, although I have never succeeded in keeping it as long as any of the varieties aforementioned.

Mammoth Chili is perhaps the largest of the winter squashes, and for exhibition purposes is one of the best. It is rather coarse for table use, but as a pie squash it is hard to beat.

I need not mention the summer or bush varieties, many of which are excellent,



There is Merit and Money in Vegetables Like These

Outfit ready for Market. Farm of Geo. Syme & Son, Carleton West, Ont.

comes apparent. Where new seed is purchased each year, there need be no hesitancy about planting all varieties in the same plot.

Mature squashes, that have been carefully gathered, may be kept until May, or even longer, if stored in a dry cellar, having an even temperature of about fifty degrees. At the head of the winter varieties, I would place Delicious, which in richness of flavor, is unsurpassed by any variety I have grown. In color, it is not unlike the Hubbard, and like that variety, is at its best during the winter season.

The Hubbard is a noble squash, and is probably more extensively grown than any other winter variety. It is large in size, bluish-green in color, and is unexcelled for keeping. It is dry, fine-grained, and of rich flavor, and may be had in good condition until May or June. The Golden Hubbard has all the admirable qualities of the Hubbard, differing only in color.

and are appreciated on account of their earliness. These can be grown in very limited quarters, and some of them are peculiar in form. There are also other good winter varieties, such as Bay City, Golden Bronze, and so forth. If only one variety can be grown, I would say let it be Delicious.

Pear Blight

What can be used to cure blight on pear trees?—L. T. W., Kent Co., Ont.

There is no reliable remedy for pear blight. Nothing can be done except to cut out the affected parts several inches below where any trace of it is to be seen. Burn all affected branches. The blight sometimes can be prevented in resistant varieties, like Kieffer, by seeding the ground around the trees with grass, and never plowing it up. This should be done only after the trees have commenced to bear.

The Canadian Horticulturist

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FRUIT GROWERS' ASSOCIATIONS AND OF THE ONT-
ARIO VEGETABLE GROWERS' ASSOCIATION

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Circulation Statement

January, 1907.....4,947	January, 1908.....7,650
February, 1907.....5,520	February, 1908.....7,824
March, 1907.....6,380	March, 1908.....8,056
April, 1907.....6,460	April, 1908.....8,250
May, 1907.....6,620	May, 1908.....8,573
June, 1907.....6,780	June, 1908.....8,840
July, 1907.....6,920	
August, 1907.....6,880	
September, 1907.....7,080	
October, 1907.....7,210	
November, 1907.....7,257	
December, 1907.....7,500	

Total for the year, 79,525

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Sworn detailed statements will be mailed upon application.

Our Protective Policy

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words "I saw your ad. in The Canadian Horticulturist." Complaints should be sent to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:

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EDITORIAL

SOUTH AFRICAN TRADE

Canadian fruit growers should pay more attention to the development of the South African trade in apples. There are good opportunities for developing our export trade in that direction. South Africa wants mostly early apples. The trade there wants apples in August, September, October and a few in November. Among the varieties wanted are Gravenstein, Emperor, Baxter, Snow, Blenheim and a few King, Spy, Ben Davis, Baldwin and Russett.

A prominent fruit merchant in South Africa who visited Canada last year was much impressed with the Scarlet Pippin, or Crimson Beauty as it is called in some parts of Canada. He told THE CANADIAN HORTICULTURIST that such apples, if placed on his market in good condition, would sell readily at \$5.00 a barrel. For the South African trade, it is best to ship in Nova Scotia barrels. According to the gentleman referred to, a difference of from thirty-five to fifty cents is paid between the two sizes. While this trade probably would stand only a certain amount of pushing, our enterprising growers should consider well the opportunity that it offers.

THE WORTH OF GARDENING

The people of our country should see to it that the grounds around and about their homes, their schools, their parks and all private and public places are made as beautiful as it is possible to make them within the bounds of good taste and economy. To a great extent, travellers and tourists estimate the prosperity and civilization of a country or community by the homes and public places of its people as these things betray our ideals of comfort and beauty. It is important, therefore, to make the appearance of our homes attractive and impressive. Compare a residence in the town or country that stands bleak and alone on a bare plain or stark and cold against the sky, with one backed by a grove and surrounded with well-chosen shrubbery and flowers, tastefully arranged. The contrast is obvious. The first is nothing more than a "house" the latter may be fittingly termed a "home."

The travelling public recognize the force of the contrast and are impressed by it. Such an impression is not temporary, especially when it is not a pleasant one. The critical tourist is more apt to retain and speak about the bad features of the country than he is to applaud the points of excellence. To obviate bad impressions, it is necessary to make the good features prominent and striking. All patriotic citizens should do their part in stimulating this means of national advertising.

SEEDLESS APPLES

The failure of the Michigan Spencer Seedless Apple Company, last March, is another evidence of the fact that no scheme that is based upon the idea that up-to-date fruit growers can be fooled will last long. In various issues of THE CANADIAN HORTICULTURIST we have had something to say about the seedless frauds. It would be a useless waste of space to publish further comments just now as the fruit growers themselves already have judged and know the merits and demerits of all seedless apples that as yet have been placed on the market. The in-

cident of the failure referred to adds further interest to the following item that we received some time ago from Mr. C. C. James, Deputy Minister of Agriculture, Toronto, and which proves the truth of the aphorism that "there is nothing new under the sun."

"The Ontario Department of Agriculture has recently come into possession of Part 2 of an illustrated work on fruits published in England over 200 years ago. The title page is missing, but a frontispiece is entitled as follows: 'Flora, Flowers, Fruits, Beasts, Birds and Flies exactly drawn, with their true colors lively described. Printed and sold by Peter Stent at the White Horse in Guilt Spur Street, nere Newgate.' A pencil entry gives the author as John Rea, and the date 1665 or 1676. Under the list of many sorts of the best apples to be planted at large in orchards is given the following: 'Figg Apple is without Core or Kernel, and without Blossoms, the Fruit cometh out of the sides of the branch and as big as a Pippin.'"

SPRAYING IN CITIES

Insect and fungous pests are becoming more and more numerous and troublesome on fruit and ornamental trees and plants in towns and cities. This is due chiefly to the fact that the majority of householders have not suitable facilities and equipment for fighting them. A spray pump is too expensive for most persons who have only a small lot and the proper methods of preparing spraying mixtures are not well enough known. As a result, the pests have the field to themselves.

It would be a good plan, therefore, as is now done in one or two places that we know of, for our horticultural societies to purchase one or more spraying pumps for the use of their members. If the societies cannot do this they should interest their local councils in the matter and have a machine purchased by the municipality. Such a machine, with suitable mixtures already prepared, could be rented to householders for use on their grounds at a small price per tree or hour.

Such a scheme would keep the town or city that adopted it comparatively free from the depredations of insects and fungous diseases. It would add greatly to the appearance of the municipalities and would pay for itself in the increased value of property that would result from the better fruits and the increased beauty of ornamental trees and plants that would be had.

BUY YOUR BARRELS NOW

Apple growers should buy their barrels and boxes now, or a portion of them at least. If the apple crop next fall is a normal one or above, it is probable that barrels will cost more later in the season. As has happened in some past years, it may be practically impossible to secure barrels at any price at picking time.

As some growers may want to sell their fruit on the trees, they may hesitate to buy barrels. While this system of selling is not always the best, particularly where the sale is made by the lump, it is followed year after year by many who should know better. In such cases, it often happens that the best way to sell the fruit on the trees is to be able to furnish the packages. Buyers, as well as growers, have difficulty in securing barrels in seasons of scarcity. If you have a supply stored on the farm, you may be able to make a profit on the barrels as well as sell your apples at a good price. Every grower who expects to have

apples to sell, on the trees or in some other manner, should buy at least fifty per cent. of his barrels now.

HEED THIS WARNING

We desire to warn our fruit growers against purchasing nursery stock from firms whose standing and reputation they do not know. At present, certain nursery concerns of the United States have agents in Bruce County, Ontario, and probably elsewhere in Canada, working an old game that has been exposed more than once in these columns and by the agricultural press of the United States. These concerns sell nursery stock and give a contract to the effect that they will agree to trim the trees for the first five years, that they will replace stock free, or at half price, that dies, and that they will also take the first crop of fruit that the trees produce and pay fair market prices for same.

Payments for the trees are to be distributed over several years, but the first payment to be made is in itself a fair market price for the value of the trees. The customer accepts his trees on delivery, makes the first payment, and this is the last that he ever hears of the concern. Such fraudulent methods should not be tolerated. Our fruit owners will act in their own interests if they refuse to have anything to do with such concerns.

About Manure Spreaders

It seems incredible, but there are still a number of farmers who continue to spread manure by the old fork method—or are letting it rot in the barnyard—which means less farm profits.

The manure spreader has come to be a farm necessity. The farm can only be made to pay by keeping the soil in the highest state of fertility. That means making the most of the manure, the best of all fertilizers and the only one that is produced on the farm.

All agree that manure can be made to go further and produce better results by spreading with a machine than when spread by hand. The popular estimate is that the spreader doubles the value of the manure. If this be true, or approximately true, it will be easy to arrive at the conclusion that a spreader will pay for itself in increased crops and soil benefits in one or two years.

The old way of handling manure was wasteful in the extreme. First, it was allowed to wash away and ferment in the barnyard. Then, at a convenient season, it was hauled out and thrown in piles in the fields, and the same wasting process was continued. Finally, it was spread by throwing it in forkfuls and in hard lumps over the ground, leaving it in a condition in which the ground could not get the benefit of even the fertilizing contents still remaining.

With a view to preventing this great waste, the International Harvester Company of America is offering to the farmers of the country through their local dealers everywhere, three most excellent machines. These are: The Corn King, the Cloverleaf, and the Kemp 20th Century spreaders.

The manure is pulverized and spread evenly, so that it is immediately available for plant life. The first shower that comes along after the spreading, washes the whole into the soil. There is no waste. Write direct to the International Harvester Company of America for catalogs and complete information.

A Score Card for Fruit Trees

IN the fall of 1907, the subject of score cards for fruit trees came before the attention of Prof. John Craig and several members of the Lazy Club of Cornell University. By looking the field over to see what had been done in the matter of score cards for trees, and in particular nursery stock, it was readily apparent that nothing was tangible along these lines.

The Lazy Club with its usual spirit and enthusiasm appointed a committee to draw up a model score card for fruit trees which would be simple, effective, and aid in giving

satisfactory information and protection to both the nurseryman and the purchaser. Although this card has had no official recognition, it has been approved by the horticulturists at Cornell University. The Lazy Club recognizes the fact that this card is only the beginning of the establishment of a standard for quality of nursery stock. It is hoped that this card will be used as a means of education to those interested in such subjects. The Lazy Club members invite suggestions and criticisms on this card which is as follows:

Score Card for Nursery Stock

Kind	Variety
Stock received from
Judged by	Date
1. Trueness to type	10
2. Size	15
3. Root system	30
4. Condition	25
5. Uniformity	20

Neither overgrown or stunted and be of specified age and height.

Well balanced with an abundance of roots. Freedom from disease and pests. Moist condition of roots; of bark.

As to the character of the variety.

Respectfully submitted by the committee.—W. H. Wicks, M. B. Cummings, L. D. Batchelor, W. J. Sowder and O. S. Morgan.

NOTES FROM THE PROVINCES

The Fraser Valley, B.C.

J. W. White.

As good crops of small fruit can be grown in the Fraser Valley, British Columbia, as anywhere else, but unless we can market them to the best advantage we are not going to profit to the extent that we should. As growers, we are beginning to see the advantage of working together in a co-operative way and a beginning has been made in this direction. I think Hammond was the first point in British Columbia to make long distance shipments of fruit. Of course, it was in a very small way at first, but the business is getting larger every year. We have, at Hammond, an organization known as "The Hammond Fruit Growers' Union," which is making a success of shipping fruit and there are similar organizations at other points. It is only a matter of a little time when all these shipping unions will be working under a controlling head so that there will not be any clashing of interests in the way of prices or over loading the market at certain points.

PACKAGES

The package question is a very important one to the grower. Our packages are uniform now and appear to be giving satisfaction, with the exception of the fourth strawberry box. A good many of the growers think that it is a little too large. By the time these boxes are nicely rounded up, it is certainly a large box of strawberries.

The cost of packages has become a serious matter to the grower. The price is away up. Perhaps this may have the effect of bringing out a new package for small fruits. One that would hold equal to three or four crates and could be returned to the grower would be all right. This might be an advantage in other ways. It would compel more careful handling.

It is part of the fruit grower's business to cultivate the public taste for fruit and

enlarge his markets. The only way we can hope to do this is by producing a good article. The grower may take all the care possible to have his fruit picked carefully and take it to the shipping point without unnecessary jar, then after all his care, the express people come along and, generally with the help of some of the train hands, pitch it into the car like so much cord-wood. Probably they would be more careful of cord-wood for fear of getting splinters in their hands. Once in a while a few careful men will come along and put the fruit on the car in a way that is very satisfactory and they do not delay the train any longer. Any man with the least bit of sense must know that taking a crate of berries and tilting it up on end will injure the contents. If these men could only be made to pay the damage that is done through their careless handling, the matter would soon be set right.

Kettle Valley, B.C.

Vernon News

From present appearances, the culture of grapes in the Kettle Valley surrounding Grand Forks will be very extensively prosecuted this spring. It is stated that at least 3,000 grape vines were planted there during the past few weeks and that that number will be more than doubled next fall, as that is the proper time for the planting of the vines.

A. D. Morrison, one of the local authorities on grape culture, says that at his private residence in West Grand Forks he has successfully grown grapes and that one vine he has, which was just four years of age last year, yielded 75 pounds of grapes. Mr. Morrison states that grape vines four years of age grown in this valley should yield at least 50 pounds of fruit to the vine. These vines, if planted 10 feet apart would make 175 vines to the acre, which at 50 pounds to the vine would be 8,750 pounds, which allowing eight cents a pound for the grapes, would make just

\$700 for the grapes produced on one acre of land after four years. Owing to the great amount of sunshine in this valley this section is especially adapted to the culture of this most prolific of fruits.

New Brunswick

J. C. Gilman

First spraying was finished on May 12th and on the 26th, the fruit buds were far enough advanced for the second application of Bordeaux and Paris green. When this was nicely started, a cold, wet week set in, holding back spraying and most other field work. Myriads of tent caterpillars were on the trees. As it was too wet to spray and the blossoms were opening, hand work had to be resorted to to keep them in check. The blooming season is passed and the second spraying has been finished.

Light frosts occurred early in June but little damage was done except to wild strawberry blossoms. Cultivated berries were not much in bloom and were not harmed. Strawberry buds that were not well mulched, winter killed considerably, possibly 20 per cent. Cuthbert raspberry and Snyder blackberry canes were killed back one-quarter of last season's growth. Herbert and King raspberries are alive to the tips and promise a fine crop. Gooseberries and currants also promise well. In general, present prospects indicate a good fruit crop with the exception of some tender fruits and plants that were not well protected.

The executive committee of the New Brunswick Fruit Growers' Association is making arrangements for an orchard meeting. The time and place has not yet been announced.

Prince Edward Island

Rev. Dr. Burke

We are very late with florescence this spring; indeed, at this writing (June 8th) exfoliation is not half perfect even in our fruit trees. The first information blank of the Fruit Division has been returned with the remark, "Too early to answer any questions"; but these days, things are assuming their normal shape. The grass is exceedingly forward, but the trees slow—something of a paradox, you will say. The early blossoms are swelling. I see the Transparents and Duchess' covered with approaching bloom. The other trees look as if they would compete favorably in this line too. I presume that we are to have a full year; it is due here assuredly.

The wild strawberries make the vacant places white with their white blossoms. There will be plenty of them if nothing untoward occurs. The cultivated berries are not yet at a stage when one can presage abundance. The currants and gooseberries are in blossom and they are a picture of full and plenty. Small and big fruits, then, wild and cultivated, promise well.

There has been a good deal of white-washing for bark-louse which was never more in evidence than to-day. Some years develop a great increase in this pest over others. Thrifty trees as well as neglected ones are the victims. Last year its spread was amazing. I find it on many other trees than the apple. I find it on the currants, bush cranberries, rowans, etc. It will have to be handled carefully. Prof. Macoun's plan of white-washing in November is the best.

I saw the secretary of our fruit growers' association the other day and he said

to me that the circular sent out for offers of small fruits, apples and plums for preserving, by a Montreal firm, has not met with the reception it deserved. There is any quantity of this fruit about Charlotte-town even; but the raisers would like to have the country folk supply the factory so that they could cater to the local market in fresh fruits themselves.

Nova Scotia

Eunice Watts.

"One of the chief fruits for exportation from Nova Scotia is the cranberry, and now the bogs promise an excellent crop. Cherries and currants show up fairly well. Although somewhat early, the general opinion is that the apple harvest will be a bounteous one. The early varieties look very promising."

For spraying, many orchardists are this year discarding Paris green from the Bordeaux mixture in favor of arsenate of lead or arsenite of soda. The latter stock solution is made by boiling together for 15 minutes one pound of white arsenic and four pounds of sal-soda in one gallon of water. It is claimed that this mixture is perfectly soluble in water and costs less than half that of Paris green. Arsenate of lead remains in suspension longer than Paris green and will neither wash off nor burn the foliage.

As one drives through the Annapolis Valley, it is a pleasure to note the increased interest taken in the beautifying of home surroundings which a few years ago was not very apparent. The laying out of the grounds and the formation of neat beds near the homestead gives an air of prosperity and refinement which few other improvements can give.

In spite of the low prices recently paid for apples, the demand for trees is brisk and growers purpose planting still more next year.

Notes from Inspector Vroom

Fruit trees are looking fine in Nova Scotia, and bid fair to give a good crop of fruit this season. Taking into consideration the increase in acreage, and the growth of the trees already bearing, the output should be a record breaker. Fruit growers are spraying this spring very generally. Cultivating and pruning come in for their share of attention, and orchards are in good condition.

In many places, the Ben Davis is being grafted out. Blenheim seems to be the popular variety here now.

The campaign against the brown-tailed moth is still on. Every infested section is being reached.

The total export of apples from Nova Scotia for the past season was 490,000 barrels; adding to these figures 75,000 consumed in the local markets brings the crop up to 565,000 barrels.

Several new fruit houses are being built along the line of the Dominion Atlantic Railway, and preparations are already being made to handle this year's apple crop. Several co-operative associations are being talked of and probably some will materialize.

There is a feeling in the province that the apple industry must be carried on along different lines this year. Better packages, grading and packing seems to be the feeling. Growers intend to ship their own fruit, instead of selling to the dealers "tree run." Small fruits are looking well, and promise good crops.

Montreal

E. H. Wartman, Dominion Fruit Inspector

Fruits have set well. Apples are quite a size, particularly those of Duchess and Astrachan type. Many trees will have to be thinned, if fruit is to be of saleable size.

A lesson in packing apples properly came under my observation recently. I saw a No. 1 barrel of Spy apples opened on June 13th, having been packed eight months. There was no sign of decay. The owner was offered in my presence \$6, but his answer was, "No, sir, \$6.50 is my best offer."

The first strawberries from Ontario to this market arrived on June 9th. This is a remarkably early date for home-grown berries.

The first car of California fruits—peaches, apricots and plums—was sold on June 11th. It was packed by Earl Fruit Company. This firm is noted for a good honest pack, and, as follows, good prices. The fruit was not exceptionally fine, but perhaps, a fair quality for first picking.

Strawberries are coming in from Delaware, about six cars per week, and selling June 15, from 10 to 13 cents by auction.

Many cars of tomatoes have arrived so far from various parts of the United States, in four basket and six basket crates, containing about 20 pounds for four basket crates, and 30 for six basket crates, and selling at rate of about \$3 per bushel. Of course each tomato is wrapped in a silky paper; the package complete and its contents are of best quality.

Quebec

Auguste Dupuis.

The general conditions for fruit of all kinds grown in the north-eastern part of the Province of Quebec are excellent. The winter through cold did not cause any damage to trees and small fruit plants. We had plenty of snow and no thawing before the middle of April. Minor losses are reported by mutilation of trees where the snow drifted. Mice have girdled trees in some orchards, but the damage is of small consequence. The season is backward.

Reports are almost unanimous that the show of bloom of apple trees is good. The weather has been favorable for pollination and we hope it will be the same in the critical period of setting. It is too early to mention the work of insects. We have only noticed and destroyed the currant worm. I notice that Alexander, Astrachan Red, St. Lawrence and Golden Russet trees have bloomed very lightly.

The commercial plum sections (Montmagny, L'Island and Kamouraska Counties) report the outlook favorable. Richmond, Montmorency and Griottes Cherries are very promising.

The orchardists of Kamouraska County have established a fruit growers' association. The board of directors is composed of energetic men, who will succeed in promoting fruit growing in the county. They have distributed a large number of apple and plum trees which were planted by an expert sent by Honorable Mr. Allard, Minister of Agriculture. Several members of this new society probably will subscribe to THE CANADIAN HORTICULTURIST. The president is Mr. L. Lezotte, and the vice-president, Mr. Wm. Power, both of St. Pacomé. I hope that the orchardists of Kamouraska will benefit as much by reading this first-class horticultural journal as their confreres of L'Islet County.

Co-operative Fruit Growers Meet

THE annual meeting of the Co-operative Fruit Growers of Ontario, was held in Toronto, on June 9th. Among those present were President A. E. Sherrington, Walkerton; 3rd Vice-President Robert Thompson, St. Catharines; Messrs. Elmer Lick and W. H. Stainton, Oshawa; Jas. E. Johnson, Simcoe; J. A. Webster, Sparta; C. W. Gurney, Paris; Adam Brown, Owen Sound; H. Wilson, Oakville; R. L. Stephens, Orillia; P. W. Hodgetts, Toronto, and the secretary, A. B. Cutting, Peterboro.

The reports of the secretary and treasurer were read and adopted. They indicated progress; 24 associations were affiliated last year as compared with 13 the previous year. All the delegates at the meeting stated that their associations intended to continue in affiliation with the central organization.

Officers for the ensuing year were elected as follows: Hon. president, A. E. Sherrington, Walkerton; president, D. Johnson, Forest; 1st vice-president, Robt. Thompson, St. Catharines; 2nd vice-president, Jas. E. Johnson, Simcoe; 3rd vice-president, Elmer Lick, Oshawa; acting-secretary and treasurer, P. W. Hodgetts, Parliament Buildings, Toronto; auditor, C. W. Gurney, Paris.

The experience of the associations during the past two years has shown the value of such a central organization for the local associations. This was pointed out forcibly in a letter from Mr. D. Johnson, who, through illness, was not able to attend the meeting.

MR. JOHNSON'S LETTER

To the Co-operative Fruit Growers of Ontario.—It is just possible that some of the representative fruit growers assembled may have met with unforeseen difficulties last season which may have caused them to grow somewhat discouraged in the co-operative marketing of fruit. The unforeseen financial crisis of last fall, has had much to do with the circumstances so disastrous to some, but the chief difficulty rests in the fact that two-thirds of the apples packed last season should never have left the orchards. I do not mean to insinuate that our co-operative associations have been much to blame in this way, but the fruit packed for general trade last season by dealers was astounding.

During the past winter, I visited many of the leading markets of the north west provinces, calling on most of the grocers in the towns visited, where I saw thousands of barrels of apples packed by Ontario shippers, branded No. 1, not one single barrel of which, to my recollection, would anything like reach that grade. The conditions were such that unless I saw it myself, I could not believe it possible that men of ordinary common sense would pack such fruit. I believe that most of our associations would refuse to brand most of it No. 3. The result is that the Ontario fruit has come into disgrace by reason of its packing.

The quality of our fruit is admitted by all dealers to be far ahead of that from the Pacific Coast. Even the rubbish shipped there, they prefer, on account of its flavor, to the products of the western orchards. Yet the westerners are going to capture the markets through their packing, if something is not done.

In British Columbia, Oregon and Washington, I saw large quantities of fruit, which, while, perhaps, a little larger than our own, was not a bit more carefully selected than that packed by many of our own associa-

tions, which I have visited. The result is that the honest packers of fruit in Ontario are brought into discredit to the extent, I believe, of *one-half the value of their apples*, by the dishonest ones.

Such being the evil and disastrous influences exercised against us, I would earnestly impress on the Co-operative Fruit Growers of Ontario assembled, to formulate some drastic method by which these dishonest dealers shall either be brought to justice or forced from business. It appears to me that the co-operative associations and the few individual packers, are the only ones who have the interests of the fruit industry at heart. In them alone, by constant perseverance, and steadfast determination to overcome these obstacles, can we expect to finally overcome these dishonest methods of packing, which have so seriously affected our prices.

While in the west I saw the pack of firms who in buying understood the quality of No. 1 and No. 2 apples as well as the best informed among us, whose personal pack was simply rubbish. The large dealers, however, are not the only ones to blame, as almost every small town in the west is flooded by the shipment of small dealers in Ontario, who ship a car or two to some friend or merchant known to them. The quality of most of these packs is so bad that most of us would not believe it unless we saw it.

In the United States the very same condition prevails, and the markets which I visited there during the past winter have convinced me that they have much yet to learn. If they had left two-thirds of their apples in the orchard, or sold to the canners, the result financially would have been different.

Our worthy chief of the fruit division and his staff are doing their best to try and stem this current of dishonesty. But the inspectors are so few that it is absolutely impossible for them to do so. *Three or four times as many inspectors* at least should be appointed *during the fruit season*, which would mete out justice to those who have ruined our reputation and prices. I am convinced that there is no finer fruit producing country in America than Ontario, if we would only grasp our opportunities.

I have only recently returned from California and other States in the west, where I spent considerable time in studying their methods of growing and marketing their fruit. I find that co-operation has proved the very salvation of their fruit industry. Previous to the initiation of this method, the fruit growers were struggling individually, one competing against the other, with most disastrous results. All were preyed upon by organized dealers, who walked off with the proceeds. Any attempt at co-operation, when first tried, was met with indifferent success, but finally triumphed, and attained for the growers the reputation and profits which they are drawing by an honest co-operative system. It is not to be supposed, however, that the co-operative system there met with immediate success, but far from it, the chief difficulty being of the inability of the fruit growers working together. Many local associations had been shattered and torn in its earlier days by suspicion and doubt. In fact, even at the present time, many of the local exchanges are troubled by dealers trying to buy off their members, and by baiting them away from the association.

Our method here in Ontario, is almost exactly the same as their most successful organization. First of all, local associations for the packing of fruit are established. These are affiliated into exchanges, and exchanges united into the Californian Fruit Growers Exchange, which is a huge commission house, controlled by the fruit growers for their own interests.

In conclusion, I would say to the fruit growers of Ontario: "Stand by co-operation as your only refuge." We have already attained a reputation which will stand us good service in the future. The situation is entirely in our own hands.—D. Johnson, Forest.

Some Spraying Mixtures

R. J. Messenger, Bridgetown, N.S.

The gullibility of farmers has been catered to during the past year or two by several spraying mixtures. I will not say that they are frauds; that would be unfair until we have tried them, but from past experiments and from present knowledge of necessary conditions, we are led to question the efficiency of some of them even without trial. Again, almost all of them are more expensive than the old reliable preparations and their chief aim or benefit seems to be to save the lazy farmer the trouble of making the old ones.

Nico-Soap professes to kill all insects and their eggs by contact, insects, both leaf-eating and suctional. How a preparation could be strong enough to destroy the, in many cases, well-protected eggs of insects and be not only inexpensive but also non-injurious to the host plant, is more than my reasoning power can conceive. One worthy farmer said, in his testimonial, that he sprayed a bunch of large caterpillars with the preparation and in three minutes they were all dead.

Prepared Bordeaux, when the lime and bluestone are ground and mixed dry, is another wonder working and labor saving mixture. Anyone who understands the principles of mixing Bordeaux will question the wisdom of mixing the ingredients thus.

Assenate of Lead, while effective, is more expensive than Paris Green.

V1 and V2 Fluids are the latest and most secret. Mystery, though, is what the farmer wants.

Now, I am not condemning these preparations, but I want to urge the farmer readers who have their legs pulled often enough, to wait until our experiment stations have thoroughly tried these new things before they spend money on them. Bordeaux Mixture and Paris Green are good old friends. Let us stick to them until we are sure of something better.

A copy of the first annual report of the Missouri State Board of Horticulture, including the 50th annual report of the Missouri State Horticultural Society for 1907, has been received. It contains much valuable information on fruit and flower growing.

Copies of the February and March, 1908, issues of THE CANADIAN HORTICULTURIST, have been requested by General-Lieutenant Schmit, St. Petersburg, Russia; Messrs. Eggers & Co., St. Petersburg, Russia; and Librairie Spineux & Co., Brussels, Belgium. We have no back numbers of these issues. Can any of our readers send either of these copies to us? Send to our address, Peterboro, Ont.

An Excellent Service

As the question of quick and cheap transportation of perishable goods is always an interesting one to the readers of THE CANADIAN HORTICULTURIST, it may not be amiss at this particular time, to draw attention to the improved Allan Line services via the St. Lawrence route for the summer and fall of 1908.

This pioneer line between Canada and Great Britain, is again to the front with three new steamers for the Canadian trade, built, launched and put into commission during the last eighteen months, the "Corsican," 11,000 tons, "Grampian," and "Hesperian," each 10,000 tons, the first named for the Liverpool service, and the latter for Glasgow. These ships are equipped with all the latest devices for loading and discharging, as well as being fitted with the most modern system of refrigeration and ventilation. The advent of these ships has made it possible to perform the Glasgow service with four vessels, instead of five as heretofore, and, whereas, in former years, the Allan Line took ten days to land fruit and other perishables in Glasgow, the fleet for this season will make an average voyage of eight days between Montreal and Glasgow.

The particular attention of the apple exporters is drawn to this improvement. Experience has proved that apples, especially, must be stored in well ventilated compartments, and that the quicker they are transported the better for the fruit. The "Grampian," "Hesperian," "Ionian," and "Pretorian," of the Allan Line undoubtedly comprise the best Glasgow fleet ever put in the St. Lawrence trade.

The Liverpool service is the same as last year, being comprised of the well-known fast turbine steamers "Victorian" and "Virginian," 12,000 tons each, and the favorite 10,000-ton twin screw "Tunisian," as well as the new 11,000-ton twin screw "Corsican," already referred to.

The improvements on the Glasgow and Liverpool routes, have enabled the Allan Line to very materially strengthen the London fleet, and the following well-known vessels will give a weekly service to this port, viz., "Corinthian," "Sicilian," "Parisian," "Sardinian," "Pomeranian," and "Hibernian."

These ships discharge at Surrey Commercial Docks, where, it is said, the finest cold storages in Europe have been erected and shippers of all kinds of dairy products and fruit are assured of the very best safeguards for the protection of perishable products. The Surrey Docks are the most conveniently located in London for the delivery of apples to Covent Garden, Spitalfields, the Monument and Borough markets.

The agents of the Allan Line are always prepared to supply information to the inquiring public, and any applications for space, rates, and so forth, will receive immediate attention. When writing, kindly mention THE CANADIAN HORTICULTURIST.

The official report of the 15th annual international convention of the North West Fruit Growers' Association, which was held at Vancouver last December, has been issued. It contains a score or more of interesting articles on all phases of fruit culture. Its compilation is a credit to the energetic secretary of the association, Mr. Maxwell Smith, of Vancouver.

Fruit Convictions

The Fruit Division of the Dominion Department of Agriculture, has been very aggressive during the past few months in pressing prosecutions against apple shippers and packers detected in shipping improperly crated fruit. During the past few months, almost 170 convictions against the Fruit Marks Act have been secured, including 21 in the Maritime Provinces. The prosecutions in Ontario have been in the hands largely of Mr. M. R. Baker, of the department, who has done exceptionally good work, having scarcely lost a case. Between the first of last September, and the end of November, five inspectors of the department, with four assistants, inspected 15,000 barrels of apples.

It is believed that this year, the price paid for apples in Canada is likely to be considerably less than that paid last year, owing to the fact that the packers lost so heavily on last year's crop. One well-known Ontario packer is said to have lost over \$80,000 on his shipment of fruit. These losses are going to make the packers more cautious this year in their purchase of apples.

Please send photographs of orchard and garden scenes for publication.

A little booklet, entitled "Fertilizing Root Crops and Vegetables," by Walter Shipley, has been published by the Dominion Agricultural Offices, of the Potash Syndicate, Toronto. It gives the results of experiments with these crops, and points out the respective value of the different kinds of common and commercial fertilizers. Write to this firm for a copy.

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A Friend for Thirty Years

A gentleman who has been a subscriber to THE CANADIAN HORTICULTURIST ever since it was started and who has been a member of the Ontario Fruit Growers' Association since 1870, is Mr. Robert Govenlock of Seaforth, Ont. Recently Mr. Govenlock was asked to tell of his experience in horticulture and he wrote as follows:



Mr. Robt. Govenlock

"The first time that I really took an interest in fruit-growing was in 1873, when I went to Ottawa to a summer meeting of the Ontario Fruit Growers' Association. I went with Dr. Arnold, of Paris, Dr. Beadle, and Mr. A. M. Smith of St. Catharines, Mr. Leslie of Toronto, Col. McGill, of Oshawa, Mr. Dempsey of Prince Edward County, and some others. We all took some fruit with us as there was very little grown around Ottawa at that time. One day Hon. R. W. Scott entertained us all to luncheon. I am glad to see that he is still alive but I think that Mr. A. M. Smith and I are the only ones on that trip still living.

"We talked over the matter of a publication on the way home and when some years after Dr. Beadle got out his first issue, he wrote me and I got him about twenty subscribers. THE CANADIAN HORTICULTURIST was a small affair then to what it is now. I would not like to be without it as it contains the experiences of the best men in the Dominion. I learn something in every copy. Our lives are too short to test everything for ourselves.

"About the time of the first issue I planted a hedge around three acres of land leaving the south side open. Then I planted a few hundred grape-vines, mostly Rogers varieties. They all did well and escaped the spring frosts. I never was caught by the frosts in the fall as good cultivation will ripen them two or three weeks earlier. The two serious drawbacks I had were the spring frosts and thieves. As mine was the only vineyard around, I often had my grapes stolen. Sometimes I escaped the frost but never the thieves; like the poor, they are always with us. I gave up grape-raising some years ago. One year I had my grapes ripe on the 12th of August and sold them for 12 cents a pound. This shows what good cultivation and feeding will do. I still take a great interest in fruit and flowers."

Insects on Vegetables

For all persons who grow vegetables, for profit or for pleasure and who require a practical treatise on the various pests that attack such crops, an excellent book entitled "Insects Injurious to Vegetables," has been prepared by F. H. Chittenden of the United States Department of Agriculture. It is published by the Orange Judd Company of New York City.

In this work, the chapters on the prevention and destruction of insects by mechanical and farming methods as well as by insecticides are particularly interesting and valuable. All injurious insects on the various kinds of vegetables are dealt with individually in respect to their habits, life histories and methods of control.

Too Many Handling Seeds

Editor, THE CANADIAN HORTICULTURIST: It has long appeared to me that too many people handle seeds before the grower gets them. I have always got satisfaction when ordering direct from some large dealer, but when buying from others, the case is too often disappointing. I once ordered a certain variety of mangel seeds. When the crop matured, I was surprised and disappointed to find numerous varieties of mangels, garden, field and sugar beets. All varieties of this class of seeds look alike and possibly at the end of the season, small quantities of each variety that are left unsold will be mixed together carelessly and given a name and sold. This results in injury to the farmer.

I ordered asparagus beans and obtained something that was apparently of no value

in this district. I disapproved of the seed sent but was assured that it was the variety ordered. I knew better but sowed it for curiosity. One day Prof. H.W. Smith and some students from the Nova Scotia Agricultural College, who visited our gardens when the plants were thrifty, pronounced it to be the southern cow pea. It did not mature.

I often have ordered seeds and found that the name of them was not given on the parcel. This ought not to be. It is fraught with mischief.—Peter Barrett, Home for the Poor, Truro, N. S.

Have you a horticultural library? In our neat little 36 page book catalog, we have listed many practical horticultural works. A free copy will be sent to any reader on request.—Address, Book Department, THE CANADIAN HORTICULTURIST, Toronto.

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(Group of Black Walnuts, a few years old, rapidly growing into value)

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Toronto Horticulture

The month of June was a busy one for the members of the Toronto Horticultural Society. Four important gatherings took place, each of which was largely attended. On June 2nd, Mr. J. McPherson Ross gave a splendid address on shrubs. The address was a very instructive one. Extracts from it are published in this issue.

The second meeting was held on Saturday

afternoon, June 13, at the home of Miss Blacklock, 504 Dovercourt Road. It proved to be one of the most delightful and instructive outings ever participated in by the members. Miss Blacklock's garden is so full of perennials and shrubs that it seems almost impossible to find room for another plant. Many plants were seen there that are comparatively scarce and a visit to this garden is well worth the time spent.

The third meeting was on June 16. It was in the form of a reception to Mr. Jas. Wilson, the new Parks' Commissioner for Toronto. About 250 members of the society and their friends spent an enjoyable evening, listening to addresses given by prominent members of the City Council on horticultural interests in Toronto. Mr. Wilson appears to be the right man in the right place and has been promised the co-operation of the citizens in general to carry out his plans for making Toronto a "City Beautiful." One of the most popular moves Mr. Wilson has made was the removal of the "Please-keep-off-the-grass" signs in the parks. Mr. Wilson's contention is that as the citizens pay for the grass they are entitled to walk on it and when it is worn out they will have to pay for more.

The society's annual excursion was held on Friday, June 19, to St. Catharines. A very enjoyable time was spent, visiting the St. Catharines' Horticultural Society's Rose Show. Many fine roses and peonies were shown, which were greatly admired by the visitors.

The membership of the society is now well over the 200 mark. With the enthusiasm that is now being shown at the meetings, it should not take long to have a membership of over 500. The genial president, Mr. H. R. Frankland, is proving very popular and is having the co-operation of the members in making the society more useful than it has been in the past.

I have just seen a copy of THE CANADIAN HORTICULTURIST and find it most interesting. I enclose \$1.00 and shall feel obliged if you will send it to me regularly.—W. Staley Spark, Berkhamsted, England.

POULTRY DEPT.

Conducted by S. Short, Ottawa

Summer Tragedies

After more or less expense and more or less anticipation, and after experiencing the pleasure of a successful hatch, great is the disappointment to find that one or more of our chickens has disappeared during night-time. Good fortune it is if the body of the deceased is found in the coop—a victim of a clumsy mother—or to the diseases of chickenhood, for then one has a certain knowledge of the causes of death. But altogether different are the circumstances, or causes of death, when the body is not in evidence. What became of the chick is in most cases a matter of conjecture. The most likely theory is that it has been devoured by some animal or bird. If so, precautions should be taken at once to protect the rest of the brood, for, if any bird or beast takes one chicken without being caught or frightened off, they will nine times out of ten, return the following night and kill and take away another.

In country and suburban districts in summer time, the poultry have many enemies and breeders sometimes suffer heavily by their depredations. Years ago the hawks worked havoc amongst the young fowl. They still do in unsettled districts but near large towns and cities they are now rarely known to be troublesome. The crow seems to have taken the place of the hawk in destructiveness only much more so. The hawk is a bold fellow, coming down at midday with a swift rush, a pounce, and up and off with a chick right before your face. One chick every other day would satisfy him, but not so with Mr. Crow. He sneaks down at daylight, walks quietly amongst the coops, seizes and cuts the throat of the young chick to prevent it crying out and then flies off with it. He takes one the first morning, two or three the next and then if not shot or frightened will bring his friends with him and speedily destroy every chicken in the place. Fortunately the crow is very cowardly, and if fired at, will be so frightened that neither he nor any other will come near the neighborhood for some time. Whenever a crow perches on the fence near the poultry run or near the garden it is safe to suppose he means no good to either and should be promptly shot at and frightened off.

In the next issue in this column will be given a description of the animals that prey upon the poultry and their methods of attack. By way of a word of warning, the writer believes that these creatures are attracted in many cases by the smell from unclean runs that must be noticeable in the moist evening and nights of midsummer to animals of keen scent for a great distance.

Millions of feet of lumber are purchased annually and kept in stock for 12 months to enable the Consumers' Box Co. of Toronto to handle their enormous box trade. This firm makes a specialty of boxes for fruit and vegetable growers and their prices are as low as good quality will permit. Co-operative associations would do well to obtain their special prices for large quantities.

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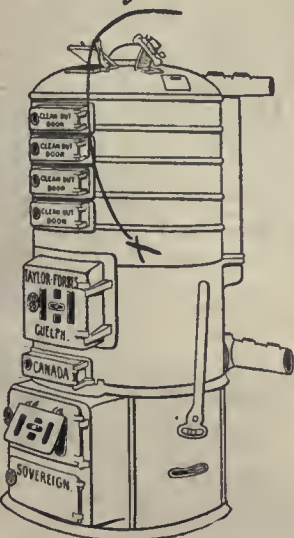
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Naming Gladioli

At the last annual convention of the Horticultural Societies of Ontario, Mr. John Cavers of Oakville, said: "A few years ago Mr. Groff published the statement that in his judgment the interests of the gladiolus would be best served by its being propagated and disseminated in collections rather than in named varieties." This was published in the second annual report of the association and recently was brought to the attention of Mr. Groff who replied as follows:

Editor, THE CANADIAN HORTICULTURIST: My attention has been called to page 54 of the Annual Report of the Horticultural Societies of Ontario, where Mr. Cavers refers to my opinion as to the naming of gladioli. As I made this statement some years ago, before half of my hybrids had been originated, it is a satisfaction to know now that my then expressed view was correct, taking the situation and interest in it's broadest sense. Had I at that time followed the commercial practice of naming every variety carrying sufficient difference to warrant the distinction, the absurdity of a named list of over 10,000 would be inflicted on the public today.

My contention was and still is, that only those varieties of distinct marking, quality and valuable characteristics, should be selected for this purpose, while the thousands of varieties showing little special distinctiveness, should be graded into color sections, and thus produce the best value possible at a nominal cost to the amateur, who is the final and highest court of appeal.

What has been the result? The Continent

of America has given my hybrids the palm on all important public and private occasions, and my United States representative grows today 100 acres, the largest acreage of high quality in the world. Great Britain and Ireland, Europe and Africa, also Australasia, are steady buyers of "Groff's Hybrids" by thousands.

Had I waited for the unseemly wrangle with several commercial growers trying to "get on board," the gladiolus would not have been the popular flower it is today, and the variety named "America," although claimed to be the best variety of the introducer under this name, could not have achieved a fraction of the result indicated above.

As an originator it is possible to accomplish a fraction of the possibilities of improvement by hybridization, and to hamper activity by a mass of commercial detail, which is the work of the grower, would mean a material and serious limitation in the results of that work, and results are the standard by which man's work is judged.

While it is my intention to select many varieties of special quality and value for use in massing, the color sections referred to will be further improved yearly by the addition of thousands of newer types than even before.—H. H. Groff, Simcoe, Ont.

I got a sample copy of THE CANADIAN HORTICULTURIST, and like it very much. Enclosed find \$1.00 for a two years' subscription.—J. S. Foulds, Martintown, Ont.

I appreciate THE CANADIAN HORTICULTURIST very much, and wish you continued success. Enclosed is my renewal subscription.—A. J. George, London, Ont.

Buying Apples by Lump

W. J. Baker, Warkworth, Ont.

In the apple business of the past season, I went slowly, packed carefully and did fairly well. Most buyers sowed the wind, and reaped the whirlwind. This going out in the country, when the apples are the size of cherries, and buying by the lump, is the purest unalloyed gamble that one can go up against.

If the Dominion Government prohibits buying by the lump, there would be no need for the Fruit Marks Act. On account of lump buying, thousands of apples are packed each year that should not be placed in the package.

Spray your Trees It Pays

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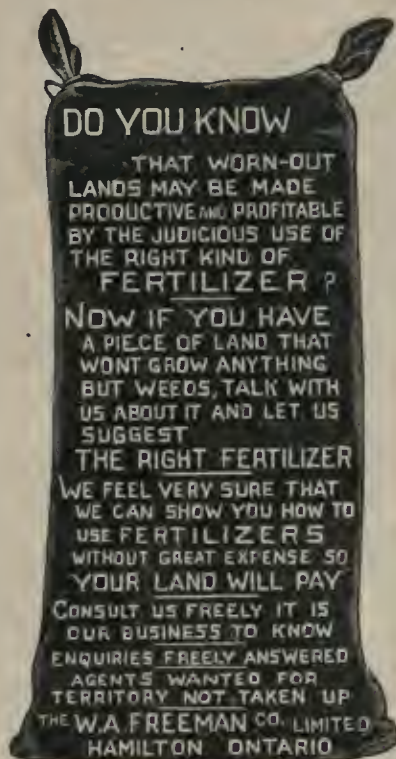
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Book of Vegetables

No matter how skilful the gardener or farmer may become in the practice of growing vegetables, he can learn much from the experience of others. An excellent book that comprises the culture and management of all kinds of vegetable crops is "The Book of Vegetables and Garden Herbs," by Allan French, a copy of which we have received. The work is a publication of the McMillan Company of Canada, Limited, Toronto. It is exceedingly creditable, both to the author and to the publishers. It is a practical hand book and planting table for all who have to do with vegetable seeds, whether as buyers or as sellers. The price is \$1.75 net.

The advice given regarding seed sowing, transplanting, cultivation, fertilizing, treatment for insects and diseases, harvesting, storing and marketing all kinds of vegetable plants that are grown for market or home use is valuable. It contains much information that cannot be found in other books of a like nature. A copy of the work should be in the hands of all progressive gardeners.

Screening Young Cabbage

The Agricultural Experiment Station, at Geneva, N. Y., has issued a bulletin, (No. 301) on "Screening for the Protection of Cabbage Seed Beds." The following are extracts from same:

The experiments that have been made show that by the use of tight frames, covered with cheese cloth, cabbage sets can be grown free from injuries by root-maggots. The plants raised under cloth grow faster, and in average years will probably reach the desired size for transplanting earlier than the seedlings in the open beds. The screened sets are also quite liable to be more tender, and if not well hardened, are generally more subject to wilting on replanting. Present experience indicates that the seedlings may be made more resistant to the usual injuries upon transplanting by the removal of the screening for at least one week before the time of planting, and that this seasoning may be done without much risk of injuries by maggots.

Screening of cabbage seed-beds is practised by comparatively few growers, and usually only small percentages of the number of plants required for their purpose are at present raised under cloth. The methods that are employed in growing seedlings under screened frames often vary in minor particulars in individual farmers, and there is a diversity of opinions on such details as the grade of cloth and size of mesh to use, and the amount of seed to sow in beds to be screened, to produce the maximum number of plants, etc. More exact methods in growing sets in this manner can only be

determined after more time for proof and verification. There is no question but that with screened frames, cabbage seedlings can be raised absolutely free from losses by maggots, but the practicability of the attempt, by the average grower, to raise all or a large portion of his plants under cloth, remains to be demonstrated. For this reason we would not advise, at least for the present, the extensive use of screening; but it is hoped that cabbage growers who are subject to annual losses in their seed-beds by maggots will make at least a small test to determine the value of screened frames under their own conditions. Precise instructions cannot be given in some of the details in raising seedlings by this method as would be desirable, but observations of the practices of a number of co-operating farmers are the basis of the following suggestions to the grower who desires to test the practicability of screening seed-beds as a means of protection against root maggots.

Locate the seed-bed on a fertile and well-drained piece of land, where there can be no accumulation of water, or washing by rains under the frame. The ground should be free of weeds and should not have grown, the year before, cabbages or other cruciferous plants. For seed-beds it is customary to apply to the land a liberal quantity of a high grade chemical fertilizer. The seed should be drilled in rather thickly in rows six inches apart. The planting of the seeds may be done at the usual season, but to avoid injuries by the flea-beetles it would be well to delay the seeding till the appearance of the beetles, which will largely have satisfied their ravenous appetites by the time the young plants appear. As the seedlings begin to show above ground, screen the bed immediately.

For the frames, 12-inch boards are generally employed, which are held in place by upright stakes. To prevent the covering from sagging in the middle, a heavy wire, running the length of the bed, and a little above the height of the boards, and supported by stakes, is used. The screening, consisting of three or more widths of cheesecloth sewn together to make one sheet, should be fastened to the frame by laths, through which small nails are driven. All openings into the bed, due to the unevenness of the ground, should be filled up by banking the boards with earth.

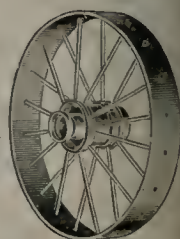
To season the plants before transplanting, the screening should be removed one week or ten days before the time of setting. In this interval of time examinations should be made occasionally about the stems of the young plants near the surface of the ground for eggs, deposited by flies coming to the bed from the outside. When any are discovered, transplanting in the field should commence.

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British Columbia Inspection

Editor, THE CANADIAN HORTICULTURIST: In reference to "Okanagan" in your May issue, I may say it is immaterial to me whether the government has one inspection station or a dozen. It is for the government officials to say, not me. Possibly it would be better for the fruit grower to have one in every little town, and again it might be better for the fruit consumer to have neither duty nor inspection on fruit as they could then buy it for half the present prices—30 cents a basket for strawberries, which are selling at retail, in Los Angeles, Cal., for 3 boxes for 10 cents, other fruits in proportion. Personally, I cannot, nor do I intend to try and compete with cheap nursery stock grown by negro help in Alabama and Tennessee, nor the Mexican and Italian help in California, nor even cheap eastern labor.

—M. J. Henry, Vancouver, B. C.

Similkameen Valley, B.C.

Except that it is about two weeks later than usual, the present has been an ideal season for fruit in the Similkameen. The spring was long and cool, thus preventing danger from frost to early blossoms—though as a matter of fact, there was no frost.

No damage was done during the winter either, and with the most favorable conditions ever since, and no signs of pests, the yield of every kind of fruit will be up to the standard both in quantity and quality. Strawberries and cherries came on the market in quantities about the middle of June, and other fruits are coming on rapidly.

Kootenay Valley, B.C.

H. W. Power.

The directors of the Nelson Agricultural and Industrial Association are preparing for their annual fall fair, September next.

Local strawberries were on the market by the middle of June and a few days later were being exported. The bulk of Kootenay berries are as yet grown at Creston, Crawford Bay, along the west arm of Kootenay Lake and at Kaslo. Other sections are going in for strawberry growing as with care and businesslike methods, a few acres of Kootenay land planted thus produce a tidy income. Reports of from \$500 to \$1,000 net to the acre are not uncommon. The Kootenay berry finds a ready market in the Northwest and Manitoba, the closest market outside of the local one.

The cherry crop this year will be an unusually heavy one. Cherry trees around Kootenay Lake thrive wonderfully and bear exceedingly heavy year after year. The fruit grows to a marvellous size and has a delicious flavor, finding a ready market

at top notch prices wherever offered for sale. An unusually large number of cherry trees were set out throughout the district this spring and more will be planted in the fall. Royal Anne appears to be the favourite for local growers.

In May, the Kaslo District Horticultural and Fruit Growers' Association received from Victoria a silver Banksian medal, awarded that body at the Royal Horticultural Societies' Exhibition last winter in London, being for an exhibit of apples, principally Gravensteins, in the production of which the Kaslo section excels. Nelson Agricultural and Industrial Association also received a silver medal for an exhibit of Grimes Golden and Cox's Orange Pippin. These were among the highest awards, a number of other medals going to British Columbia.

The Dominion Express Company has materially reduced rates on British Columbia fruit as far east as Winnipeg and are placing an ice car service on the Crows' Nest branch for the benefit of Kootenay fruit men.

The directors of the Kaslo District Horticultural and Fruit Growers' Association are negotiating with the Great Northern Railway, owners of Block 12, an extremely desirable piece of ground, centrally located in the city of Kaslo, with a view of acquiring it for exhibition purposes. This has hitherto been used exclusively as a recreation ground and it is proposed to erect buildings for the annual fall fair and put a race track thereon.

Nelson sent an exhibit of early fruits and other Kootenay products to the Dominion Exhibition at Calgary, held on July 1st and succeeding dates.

Annapolis Valley News

R. J. Messenger

For the early fruit, the weather during pollination was not favorable if, as some authorities claim, fertilization takes place during the first part of the bloom, for cold rains and east winds marked the first few days of early bloom. For the later varieties, however, the weather was ideal. The general impression now is that apples have set well and as we are getting lots of moist weather there is every indication of a good crop.

In insect pests we have quite a development of the canker worm. Some orchards have been neglected till they are almost stripped of foliage. Very few brown-tails have been seen, but it is very probable that these have been the cause in part of a more general spraying than ever before. It is unfortunate, however, that many of those who do spray do it in a half hearted manner and when other farm work permits.

As an insecticide the arsenite of soda

CUTWORMS

Corn, Grain, Potatoes, Roots, Cotton, Vegetables and flowers suffer enormous damage from Cutworms, Eelworms, Ants, Slugs and all kinds of Bugs in the soil. Maybe you don't see them, but you pay for them—quit doing so, and use VAPORITE.

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Just as well to have it pure.

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purer than



is becoming more popular than Paris green. The writer has used it now for three years and considers that it has several advantages over Paris green, since the latter seems to be adulterated more and more each year. In the arsenite you buy your own ingredients and know what you are using. The latter also becomes incorporated with the Bordeaux better than the green.

It would seem as if the orchards, as a result of good literature and institute work, were being as a rule very well cared for and now what we want is more cooperative work among the growers.

This feeling is growing among the farmers and has already resulted in the formation of two or three cooperative packing and shipping countries. If these prove successful, it is probable the idea will become general.

Co-operation in Nova Scotia

Co-operation is making its way slowly but surely in Nova Scotia. The Berwick Co-operative Association has now a splendid warehouse with concrete walls and galvanized iron roof making a practically fire proof and frost proof building. They have already purchased their barrels and are prepared to do business on a strictly co-operative basis. It will be safe to predict that the movement will spread rapidly now that they have an example of the benefits of co-operation.

Forest Tree Planting

There is at present a wide-spread interest in forestry. In Canada, there are wide areas in the west where forests are few and far between, and in the east where once were forests are now cultivated or barren lands. The question of reforestation is one of great economic importance. To regenerate a forest successfully and to plant where no forest has been necessitates considerable knowledge of local conditions and of trees. Regeneration may be performed by natural seeding, by artificial seeding, by sprouts and suckers, by planting seedlings or by a combination of one or more of these.

Probably the quickest and, in the long run, the most economical method of reforestation is by planting seedlings. Particularly, is it best for the west and other sections where timber and fuel is high in price. Seedlings should be purchased that are well grown and true to name. Stock of this nature—seedlings specially suitable for reforestation purposes—are now being offered for sale by Stone and Wellington, Toronto. Read their advertisement on another page of this issue and mention THE CANADIAN HORTICULTURIST when writing.

Farms Free From Insects.—There are fruit farms in Canada this year that will sustain no loss from insect pests. They are the farms where the "Sparamotor" is called upon to exterminate the fruit growers' insect enemies. It is indeed a pity that all farmers and fruit growers would not awake to the exceptional merits of this truly wonderful sprayer. A great host of owners has been added to the Sparamotor list this season—and more fruit and vegetable growers will be counting out larger profits at the end of the season. The Sparamotor Co. publish a book entitled "A Gold Mine on Your Farm," which they will be glad to send to all readers of this magazine. Their address will be found in their advertisement on page 157.

Items of Interest

The Niagara District Horticultural Exhibition will be held at St. Catharines on Sept. 17 and 18.

British Columbia has sent a provincial exhibit of fruit to the Dominion Exhibition at Calgary, June 29 to July 10.

An article on greenhouse construction will be published in the August issue of THE CANADIAN HORTICULTURIST. Look for it.

Early in June, Dr. Jas. Fletcher of Ottawa gave a very instructive lecture on wild flowers and their care before the members of the Hamilton Horticultural Society.

Readers of THE CANADIAN HORTICULTURIST will be pleased to learn that Prof. John Craig of Cornell is improving rapidly in health and is now thoroughly enjoying his travels in Europe.

Mr. Wm. Heikel, pomologist for the government of Finland and director of the experiment station at Helsingfors arrived at Quebec recently. He intends visiting the fruit stations and agricultural colleges of Canada.

Everything is moving along enthusiastically for the horticultural exhibition to be held at Kentville, N. S., in October. This promises to be the largest exhibition of its kind ever held in Nova Scotia. The secretary is Mr. F. C. Rand, Kentville.

The Lindsay Horticultural Society distributed 175 tuberous-rooted begonias to its members last month. They intend to hold an aster show early in September. The children of the public schools will be the competitors.—F. J. Frampton, secretary.

The Hamilton Horticultural Society has sustained a great loss, and a personal one to its members, in the death last month of its president, Mr. John Cape. For many years, Mr. Cape was an enthusiastic horticultural worker. His contributions to the columns of THE CANADIAN HORTICULTURIST were always instructive and interesting. At a recent meeting of the society, Mr. F. H. Lamb was appointed president to succeed Mr. Cape.

Coopers' Fluids

The following is an extract from a letter received from Mr. R. Davis, Hespeler, Ont., by Wm. Cooper & Nephews, Toronto: "Re-VI Fluid that I got from you on April 19th. I sprayed my trees with it on Good Friday and am pleased to say it has answered the purpose for which I got it, viz.: to kill the oyster-shell bark-louse on apple trees, also the aphids and moths. I consider V1 the best on the market. It does the work you say it will do if properly applied. I have over 100 fruit trees, pears, plums and cherries. I sprayed the whole with V1."

Extract from letter from Horatio Webb, Chilliwack, B.C.: "At present the trees sprayed with your mixture V1 are as clean as those sprayed with lime, sulphur and salt mixture, and, as the expense is much less, if the V2 is as effective as the Bordeaux mixture you will have a large sale in this country. I saw Prior's manager from Vancouver the other day, and he was well pleased with the reports he had of this spray. He said that they had not nearly enough V1 to supply the trade, so you may look for good business next year in British Columbia."

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Apple Growing North of Lake Ontario

Alex. McNeill, Chief, Fruit Division, Ottawa

THE counties from Halton to Hastings, bordering on Lake Ontario, are particularly well situated for the growing of winter apples. The business has been very profitable for a number of years, and many new orchards are being planted. Indeed, it is doubtful whether any other district of equal size has so many young orchards.

Unfortunately, with the multiplication of orchards has come the increase in orchard pests. Insects that were unknown, or that did little damage a few years ago, have become a serious menace to apple growing. The older orchards have given such good returns, and with so little labor, that apparently the owners did not need in former years to take much pains to combat these enemies. At the present time at least fifteen per cent. of the older trees are dead or dying from causes which appear somewhat mysterious to the owners. Even the young orchards are defoliated and are, therefore, stunted, with little attempt on the part of the owners to improve conditions. I visited many of these orchards recently, and found conditions exceedingly serious. The death of the older trees may be attributed to three or four causes, usually working in combination, chief of which are winter killing, imperfect drainage, oyster-shell bark louse, collar rot, and other forms of canker.

WINTER KILLING

Winter killing was quite common. Many of the older men said this was impossible, as they remembered winters much colder than any we have had lately, and the trees stood it all right; nevertheless, winter killing is doing a great deal of damage among the orchards of this district.

CAUSES OF WINTER KILLING

That it should be more prevalent now than formerly must be attributed, in part, to the adoption of clean culture, which is only one feature of what is really a much improved system of orchard practice. Formerly, it was extremely rare to see an orchard not in sod. Recently cultivation has become the fashion, and the sod has been turned down in many an old orchard. The result is to be seen in the large number of winter-killed trees. The

sod checked the growth early in the season, and thoroughly protected the roots, and thus prevented winter-killing. The clean culture not only exposed the roots, but induced a late and succulent growth of tissue in root and stem, that was more tender than that grown in sod. These orchardists made no mistake in cultivating their orchards. Most of them, however, have made a mistake in beginning the cultivation too late in the season. Many of them did not begin until the first and second week in June to plow their orchards, and these orchards were kept well cultivated through the summer. What should have been done was to work the orchards as early in the spring as possible, and cultivation should be stopped by the end of June, or not later than the middle of July, except in special

The Best of All

THE CANADIAN HORTICULTURIST is the best of all the horticultural papers that reach our office. We wish to congratulate you on the way you are developing it from year to year.—Luke Bros., Nurserymen, Montreal, Que.

cases. The protection which had been furnished to the roots by sod should be given in the form of a cover crop. Indeed, the two things, clean culture and cover crop, should invariably go together. Even without the cover crop, and making due allowance for winter killing, clean culture has been a very great advantage. But all the advantages of the sod protection, and the increased vigor induced by cultivation, are secured by uniting the two, clean culture and cover crop.

UNDERDRAINAGE

In the management of the soil of the orchard it is regrettable that so little underdraining is done. Many orchards are suffering severely for want of drainage, and it is noticeable that an undue proportion of the dead trees are to be found in the lowest portions of the orchard. It will take a great deal of missionary work to persuade many of the farmers that the best investment that they can

make in their orchards is tile draining, except it may be a spray pump.

SPRAYING

Many of the farmers have made a commencement of spraying, but very few of them perform the operation intelligently. In the younger orchards there are two insects which cause very serious damage, namely, the bud moth and the cigar case bearer. I did not see a single young orchard that had been sprayed so as to destroy these two insects. The poisoned Bordeaux mixture should have been applied as soon as the leaf buds had begun to swell, and show the slightest portion of green, or even before this. In no part of Canada that I have visited did I find the cigar case bearer and the bud moth worse than here. Many of the orchardists were only giving their first spraying on the 18th of June. It is needless to say that these men will be disappointed in their results. It will, indeed, do some good, but the injury from insects and fungous diseases will usually be so great that many of the orchardists will be inclined to think that spraying is scarcely worth the trouble.

OYSTER-SHELL BARK-LOUSE

The oyster-shell bark-louse is responsible for the death of some of the trees, at least. Nevertheless, it is noticeable that the bark-louse is worse upon trees, the vitality of which has been lowered by other causes, such as want of drainage, winter injuries or canker. It is asserted by many that the lime treatment alone is not effective. Others have tried a solution of concentrated lye. In no case has it appeared that these treatments are sufficient alone. A few have sprayed with kerosene emulsion while the insects were running; but even this has not proved successful. Many have been experimenting with patent miscible oils, also without success. None, however, as far as I can learn, have tried the lime and sulphur mixture, and apparently this is the last resort.

MISTAKES IN PRUNING

A large number of the old orchards in this district are rapidly degenerating. Many, as the result of too little pruning, have grown long and straggling, interlacing at the tips, and with no bearing

wood towards the centre of the tree. Having this form, it is impossible to spray economically, not only on account of the height of the bearing wood, but because the interlacing branches prevent the spraying apparatus from passing easily from tree to tree.

RENOVATING OLD ORCHARDS

The question is frequently asked whether these old orchards can be renovated. In many cases they can. Where the trunk and limbs of the tree are sound there is no reason why a new growth should not be started on the lower portions of the limbs. This new growth can be induced by cutting back the ends of the lower limbs along with the thinning of the finer brush towards the outside of the tree. This would, of course, temporarily reduce the bearing area somewhat; nevertheless, the result in the end would be beneficial. The bearing area is seldom too large, but it is unevenly distributed over the whole tree. Usually, in these old trees, it is confined to the tips of the limbs where the fruit spurs are much too crowded. The effect of thinning the finer brush, and cutting back the larger limbs moderately, would be to induce the growth of suckers or water sprouts on the naked limbs towards the centre. One or more of these may be selected on each limb, and so pruned as to fill up the vacant space in the centre of the tree.

These water sprouts usually grow very vigorously the first year. A growth of three or four feet is not unusual. The spring of the second year, the new growth that best suited the purpose of filling the vacant space, should be selected, and all others cut off close to the main limb. One year old shoots left should be pruned back to within four or five inches from the main limb. This would induce nearly all the buds upon this remaining stub to grow. Three or four of these would be selected and the remainder pinched out soon after growth began. By the end of the season the shoots left would usually make a growth, not as vigorous as the growth of the preceding year but still more vigorous than they would from the older branches. These again should be cut the following spring to the extent of one-half their growth. It is quite possible that, after this treatment, fruit spurs will form on these side shoots, the end buds developing into wood growth. This wood growth should again be thinned to two or more shoots as the case may require, and cut back slightly the third season. The third season fruit spurs will develop on the one year old wood, and after this very little cutting back will be needed.

If the original sprouts have been judiciously selected, you have three years af-

terwards the centre of the tree fairly well filled with bearing wood. During this time the outside of the tree has been carefully thinned, but some bearing wood would have developed, and if this is pruned to correspond with the new wood induced in the centre of the tree, you have now a good bearing tree ready to renew its youth, the younger wood growing from the centre taking the place of the older wood towards the outside.

BAD NURSERY STOCK

In the young orchards it can be seen very distinctly that the farmers are not well informed in the quality of the stock. In one case I saw an orchard of twelve or fifteen acres in extent planted with trees which must have been stunted stock, six or seven years old, severely cut back in the nursery, and making a very poor showing after being planted a year in their permanent position in the orchard.

(Continued on Page 179)

Raspberries in Dry Seasons

During seasons of drought, fruit trees and bushes often fail to give satisfactory results. To know how to care for them properly at such times would mean money in the pockets of the growers. The past two seasons were particularly dry in some of the fruit sections of the state of Michigan. During a visit to Toronto, Mr. A. W. Twiner of Sagatuck, Mich., called at the offices of THE CANADIAN HORTICULTURIST and told how he has grown raspberries successfully during dry seasons when others failed.

He grows his plants three feet apart in rows that are six feet apart. Instead of allowing the canes to grow in clumps, he throws the entire energy of the clump into one, two or three plants, usually only one. These are grown in tree form, by pinching back in summer to three feet high to induce the formation of lateral branches. For the following season, the strongest shoots are allowed to grow.

Early in spring, the soil is plowed about three inches deep toward the plants. Cultivation between the rows is carried on all season. The following spring, the earth is hoed away from the plants and cultivation is continued so as to maintain a dust mulch for the conservation of soil moisture. This system is repeated regularly.

One "Boy's Delight" apple tree given for one new subscription to THE CANADIAN HORTICULTURIST. See our premium offer.

Much of the small, imperfect, light-colored or wormy fruit comes from trees not growing under favorable conditions.

Canadian Plums

W. T. Macoun, Ottawa

Only a few domestic plum seedlings have come into prominence in Canada for the same reason mainly as with the pear, the tenderness of the fruit buds limiting the area also in which they may be grown successfully. Two Canadian varieties which are sold by nurserymen are the Glass and Kingston, the following descriptions of which are taken from "The Fruits of Ontario":

KINGSTON

"Kingston is a valuable market variety. Origin, province of Ontario; tree, vigorous and productive; fruit, medium to large, oval; color, dark purple, with thin blue bloom; stem, slender, about five-eighths of an inch long, inserted in a small, deep cavity; suture, shallow; apex, a small point; flesh, yellowish-green; flavor, tart; quality, cooking, good; season, early September."

GLASS SEEDLING

"Glass is a commercial variety resembling Quackenboss. Origin, with Alexander Glass, at Guelph, Ont.; tree, hardy, vigorous, upright, foliage peculiar dark green; productive; class, *P. domestica*; fruit, large, round oval, irregular at apex; suture, distinct; apex, depressed; stem, three-quarters to one inch long; color, dark purple with thin blue bloom and white dots; skin, thick, firm; flesh, free from pit; color, greenish-yellow; texture, juicy; flavor, sweet and agreeable; quality, dessert fair, cooking good; value, market good; season, September."

NEW PLUMS IN QUEBEC

On the island of Montreal in the province of Quebec, where domestic plums probably have been grown for nearly three centuries, many seedlings have originated, some of which are distinctly hardier in fruit bud than those usually listed. Three of the best of these are Raynes, Mount Royal, and Lunn. Descriptions of these plums will be published in the complete list.

Work is being carried on at the Central Experimental Farm in the improvement of the *nigra* and *Americana* plums and already several seedlings have been named.

In my bush fruit patch, I remove the old wood in fall after the fruit is picked. The tops also are cut off. This practice kills the insects on the old wood. By cutting the tops off the new wood, breaking is lessened.—Jos. E. Culp, Jordan, Ont.

The Salome apple should be planted more extensively. It is a splendid keeper and retains its flavor longer than most varieties. The tree is a vigorous grower and produces good crops.—D. J. Gibson, Newcastle, Ont.

The Summer Care of Vineyards

G. H. Carpenter, Fruitland, Ontario

A VINEYARD is like everything else—if you want to get the best off it, you must work for it. And during the summer is the time that most of that work must be applied, if the best results are to be looked for and obtained.



Grape Vines Well Kept and Cared For

The area planted to grapes is being increased every year. The market for this class of fruit is large, yet the time is fast approaching when only the best class of fruit will find a ready and profitable sale. Grapes will be subjected to grade the same as other classes of fruit. As quality depends as much upon summer care of vineyards as upon the training of the vines, the grower who is lax in the matter of summer cultivation will find that his vineyard is a rather poor asset. He who gives his vineyard proper care during the summer and at all times, however, will find that he has in his grapes a good source of income.

KEEP DOWN WEEDS

The great point in summer cultivation is to keep down everything but the grape vines. A soil that is supporting a vineyard does not want to be sapped of its nutriment by a crop of weeds. Cultivation should be commenced early in the spring when the ground is still moist from the spring rains.

The common custom in well worked vineyards is to plow away from the vines as soon as the soil is sufficiently dry to work well. If pressure of other work prevents plowing at this time, the land should be stirred up with a disk-harrow or spring toothed cultivator. This is most important, especially on land that is liable to bake in dry weather. Where the ground is kept stirred early in the spring, a mulch is created, the moisture is retained and the land can be plowed at any time, if deemed necessary to clean properly, no matter how little rain may have fallen later in the season. For plowing, we use a two-furrowed gang

plow and, by using an extension, can work close to the rows, leaving only a narrow strip to clean out with the grape hoe and hand hoes.

USE OF GRAPE HOE

When land is fairly clean, plowing can be dispensed with and the work greatly facilitated by using the cultivator in the middle of the rows, plowing one furrow away from the vine and finishing with the grape hoe. This method on clean land gives as good results as though the whole thing were plowed. After the grape hoe has done its work a man should go along with a hoe, and clean away around the vines, at the same time loosening up the soil. During the summer and until the crop is ready to remove, the soil should be stirred frequently, as with any crop, to destroy all germinating weeds and to conserve moisture. Immediately after the removal of the crop, the soil should be worked up to the vines either with a plow or disk harrow reversed.

COVER CROPS

Cover crops are sometimes grown in vineyards, though the common practice here is clean cultivation. When cover crops are grown they should be sown in August before the crop is removed. Any of the clovers, vetch or rye, are commonly used for such a purpose. Equally good results can be secured by mulching around the vines with barnyard manure applied in the fall. Wood ashes too gives good results.

SUMMER PRUNING

All sprouts should be kept down. These can be pinched off from time to time when small with very little trouble. Summer pruning also is advocated by some growers. This consists in removing all non-bearing wood, the object being to utilize all the nourishment brought up by the plants for the production of fruit. We have not followed this latter practice but propose trying it this year in an experimental way. The principle seems all right and the operation should prove beneficial, provided it is not done to the extreme.

SPRAYING

Spraying has now become an essential point in the management of a vineyard. A few years ago, we could produce a good crop of grapes without the help of the spray pump. Now, however, we meet with a class of insects with a special appetite for grapes and if we would have a crop, we must first put these out of the way. Grapes should be sprayed at least twice and, better, three times during the season. The Bordeaux mixture, the com-

position of which has been given many times in the columns of *THE CANADIAN HORTICULTURIST*, is the mixture commonly used. The first application is made before the blossoms appear, the second after the blossoms are done and the third two or three weeks later. Clean cultivation is important but spraying is equally essential. Without it a grower is taking a long chance on getting a crop.

Orchard Notes

There is no over-production of the best.

Never pack overripe fruit for shipment.

Peach trees require good cultivation to do well.

Midsummer pruning heals wounds rapidly and well.

Rotten chips and sawdust make a good fertilizer for the orchard.

Bud with new varieties the unproductive trees and make most of the orchard.

Grape-growers are requested to contribute articles and letters on the care of vineyards for publication in *THE CANADIAN HORTICULTURIST*.

Apples in Parry Sound

The possibilities of apple growing are not confined to a narrow strip in Southern Ontario. Parry Sound can hardly claim to be in the banana belt, but the accompanying illustration will show that if the varieties are judiciously chosen, apples in abundance may be grown in the Parry Sound district. The Yellow Transparent, Duchess, Lowland Rasp-



A Successful Northern Orchard

berry and Wealthy will be found hardy, and the McIntosh Red, Milwaukee and Baxter, for later fruit, can be grown to perfection in many sections.

The illustration shows apple trees growing in orchard of Mr. Geo. Wilkinson. Since blooming, the trees set too many apples and Mr. Wilkinson is thinning them out.

Lawn and Garden Hints for August

THE garden hose, or other means of watering is likely to be called into frequent use this month. All amateur gardeners do not understand just how to apply water to flower beds. Do not stand to one side and throw the



A Study in Black and White

water at the plants. If you are using a hose, sprinkle with care, and do not allow the water to fall with force enough to wash away the soil. If you have to bring water from a well or pump, use a watering can and apply carefully. The best time to water at this season is in the evening after the sun has set. Give a good soaking while you are about it.

If you want the season of bloom of your flowers prolonged, carefully nip all seed pods and leaves that are drying up. This is especially true of nasturtiums, sweet peas, gaillardias and larkspurs.

Maintain some kind of mulch on the soil. It may be of grass, leaves or other litter, or a dust mulch made by stirring the soil. Roses and the general run of perennial plants are especially helped by a mulch at this season.

To secure pansies that will produce flowers very early the following spring, the seed should be sown about the third week in August. The plants will winter well in a cold frame. Old pansy beds may be renewed by cutting off the young shoots around the base, many of which will already be supplied with roots. Plant them in rather sandy soil in a shady place. Keep them well sprinkled, and they will soon root and make vigorous plants to put in winter quarters ready for next spring.

Plant lily bulbs for next summer. Hardy lilies may be removed or transplanted if necessary. Lily of the valley also can be transplanted late in August or early in September.

Buy some raffia for tying plants to

stakes. It is worth more than string and rope for tying things in a hurry, and making them stay tied.

Gladioli should be staked if they are liable to be broken down by wind storms or rains. Better do this now.

Flowering asters should be well watered. Should rust attack the plants badly, spray with ammoniacal carbonate of copper.

To revive cut flowers, put them in warm salt water to which has been added a few drops of sulphate of ammonia.

Flowers for exhibition purposes should be cut early in the morning on the day of the show. Place them in a pail or jug of water immediately and put in a cool place until time of exhibiting.

The following annuals produce their flowers quickly after sowing and probably might give some flowers before frost if sown in August, and the weather conditions are favorable: Nasturtium, balsam, marigold, Shirley poppy, gypsophila, mignonette, larkspur, calliopsis, candytuff, calendula, sweet alyssum, and for climbers, scarlet runners and convolvulus.

Among the perennials that may be sown this month, and transplanted to the border late in the fall or early next spring to furnish bloom for next season, are hollyhock, delphinium, aquilegia, campanula, coreopsis, gaillardia and papaver. If transplanted in fall, protect against severe freezing winter.

Dahlias are heavy feeders. Fertilize the soil once a week while the buds are swelling. For insect pests, there is noth-

ing better than a solution of Paris green, sprayed upon the under side of the leaves. For cut-worms use a tablespoonful of air-slaked lime spread about the stalk of each plant.

Have you a photograph of a rose bush or of a rose garden? If so, please send it to THE CANADIAN HORTICULTURIST for reproduction.

FLOWERS INDOORS

Strike cuttings of coleus, heliotrope, and geraniums if young plants are wanted to keep for winter. Pot begonias, cyclamen and primroses for winter flowering.

For early freesias, plant a few bulbs late in August. Use plenty of drainage. Place six or eight bulbs in a five-inch pot. Place them in a shady place, and give water sparingly until growth begins to show. In about four weeks they can be brought to the light.

Plant some Roman hyacinths and paper-white narcissi for bloom at Christmas. After potting the bulbs, water once and put them in a frame or in the cellar. Be sure that the place is dark. If in a cold frame, cover with coal ashes. In about six weeks they can be brought into the light.

Cut back the outside petunias to within a few inches of the roots so as to have plants for winter bloom. Two weeks later, put them into small-sized pots.

Bermuda lilies for Christmas may be had by planting early this month. Put in clean pots, use plenty of drainage, and place outside on a bed of ashes to avoid



Sweet Rocket—*Hesperis Matronalis*—Growing Under and Around an Old Apple Tree
On grounds of Mr. A. Alexander, Hamilton, Ont.

the entrance of worms. Prevent too rapid drying-out by covering with hay or straw.

THE KITCHEN GARDEN

Continue cultivating the soil in the vegetable garden. Add water frequently and stir the surface soil as soon afterwards as it can be worked.

String beans, early maturing peas, flat early turnips, radishes and other quick-growing vegetables may yet be sown.

Spinach may be sown in fall for early spring use. Sow the seed before the middle of September. On the approach of winter, protect the plants with a covering of straw. Victoria and Flanders are the best varieties. If sown in August it will come in useful to pick during late fall, when almost all other green vegetables, except cabbage, are gone.

Plant some beets for autumn greens. The young leaves will be relished. If sown now, the roots will be large enough for table use.

The early crop of celery will be nearing maturity. Blanch the stalks with earth or boards.

Have you ever grown corn salad? It is much appreciated in March and April. Sow the seed about the first of September, in drills half an inch deep and six inches apart, in rich soil. Sow thinly. Protect the plants with clean straw when cold weather comes. The plants are cut for salads. The seed may be sown also in early spring. The plants are ready for use in six or eight weeks.

Another little known garden plant is chervil. It is a rich herb, cultivated and used like parsley. Sow the seed in early fall or in spring. If sown in fall, the seeds will remain dormant until spring, but will sprout more uniformly than those fall sown.

Sow seeds of lettuce for use at Thanksgiving. Start them outdoors, and later transplant to a cold frame.

AMONG THE FRUITS

If you have some fruit trees that are not bearing the varieties of fruits that you want, bud them with the desired kinds. A number of different varieties may be grown on one tree.

For best flavor in tree fruits, allow them to remain on the trees until thoroughly ripened. The pear is about the only fruit that improves when picked before maturity.

To cause the raspberry canes to throw out a number of branches, pinch them back to about three and a half feet from the ground. This is the only summer pruning that the bramble fruits should receive.

Have you read our premium offer? Send us the subscription of a friend, and secure one "Boy's Delight" apple tree for fall planting.

Rhododendron Veitchii

J. Walsh, Montreal

The accompanying cut represents a specimen plant of *Rhododendron Veitchii*. It is one of the finest cool greenhouse plants in cultivation, al-



Rhododendron Veitchii

though rather a slow grower. It is a hybrid raised by Veitch & Son, of London, England. The plant illustrated is about eighteen years old.

The cultivation of this plant is not difficult. The following compost suits: Equal parts of peat and leaf mould, with sand, and a little fresh potting soil. The best summer treatment is to plunge outside in coal ashes, in a partly shaded place, such as suits azaleas. Care must be taken to have the plant in the house before any danger of frost comes. It is very sensitive to cold or light frost.

If treated in this way the plant will give good satisfaction during the winter months. The perfume of its beautiful white flowers will scent the whole greenhouse.

Summer Care of Lawns

An important factor in the successful treatment of lawns is watering. Constant moisture is essential in the maintenance of a velvety turf condition. If the lawn is properly made, there need be no failure if the owner is situated where there is a good water supply. The water may be applied at any time, but it is better to do it at night or early morning.

When watering a lawn, give it a good soaking. Shift the hose about so that all parts will be reached. Unless watering can be done thoroughly and regularly, it is better not to do it at all.

Mow the lawn frequently as it increases the body of the sward. A lawn

should be cut about once a week, with longer intervals during the hottest part of the summer. If the grass is cut often, the clippings may be left on the lawn as they soon will shrivel up and disappear.

In order that trees and shrubs will not suffer by growing sod, circles should be kept around them without grass and the surface soil within same should be kept loose with the hoe. These circles make it possible, also, to keep the grass cut by means of the mower instead of having to use hand shears as is the case when the grass grows close up to the trunks.

If you want a first-class top-dressing for the lawn this fall, begin the preparation of same about the last of August. Secure equal parts of good, clean soil, and well-rotted stable manure. Turn occasionally until October and then spread on the lawn.

Spiraea Van Houttei

One of the most beautiful of our early-blooming shrubs is *Spiraea Van Houttei*. Its free-flowering habit gives much pleasure in June. While it responds to individual cultivation, it can be used in any place and in any soil. Its hardiness makes it particularly valuable. The flowers are pure white and are borne profusely in small, compact clusters on pendulous branches. Even when out of bloom, its drooping habit and its foliage make it attractive. Whether grown as a hedge, as an individual specimen on the lawn or massed in clumps, it is equally effective.

The beautiful hedge illustrated is to be found on the grounds of Mr. Richard Devlin of Ottawa. This hedge is composed of fifty plants set out in 1893. The second year after planting, they blossomed nicely. It has been trimmed at no regular time. In 1906, the owner



A *Spiraea Van Houttei* Hedge

cut the whole hedge down to two feet in height and now it has solid trunks to grow on and is exceedingly attractive.

Articles on amateur gardening will be welcomed for publication by THE CANADIAN HORTICULTURIST.

The Rose Outdoors and its Culture*

C. Craig, Ottawa

THERE is no other flower that grows in the garden that can compare with the fresh, sweet perfume of the rose. The rose is "Queen of the Garden." Everybody loves the rose, and many people try to grow it; but how many succeed?—only a small percentage, I fear. Yet there is no great difficulty in successfully growing roses if you give the right conditions and the necessary attention.

SOIL

In the cultivation of the rose the first and most important consideration is good soil. I have found moderately heavy loam to be the best, and if success is

ure, with another layer of manure on that and finishing No. 1 trench with the soil from No. 2. I have seen large rose gardens trenched three feet deep with four layers of manure; but one must be governed by the soil he is working with. The object of this trenching is to provide nourishment wherever the roots may go; most roses are strong feeders.

To those who cannot always secure farmyard manure I would say that a good substitute is rough bone meal well worked into the soil. Deep cultivation is also a preventive against mildew and other fungous troubles.

When planting, by no means let the

well. Let plants get a good start, then apply the kindness.

FERTILIZERS

As a stimulant I would recommend sulphate of ammonia or Albert's manure, about one ounce to a gallon of water.

WATERING

Another important point in successful rose culture is the use of the hose. I fully endorse the remarks of one of our most successful rose growers, that cold water applied from a hose pipe with force is the best means of ridding your roses of insects, especially the red spider. If syringing and watering is carried out faithfully morning and evening, there will be little trouble from insects. Some one may ask, what about mildew if you water at night? If the plants have been properly cared for as to deep cultivation, and so forth, they will be in a state of health that mildew will hardly attack them. After a dry, parching day as we very often get, the plants seem to glory in a nightly bath.

In carrying out the foregoing the grower must study his plants. If they are inclined to be weak they will need careful handling and attention as to manuring or once more his kindness may prove disastrous. The object must be to build up a strong constitution in the plants, not a great amount of soft, rank growth, but good, hard, solid wood that will stand hardships, for the rose in Canada has many hardships to go through.

PRUNING

Pruning should be done immediately on the first sign of the buds swelling. It is difficult to lay down any hard and fast rule for pruning rose bushes, but speaking generally, I would say take out all weak wood and cut the preceding year's growth back to fifteen or eighteen inches above the soil. The grower must be observant as to the habit and vigor of his plants.

VARIETIES TO PLANT

In the following lists, I include varieties which I know are hardy. While there are some newer varieties which may be preferable, those I mention will give good satisfaction and encourage the amateur to enlarge his collection.

HYBRID PERPETUALS

Crimson—Alfred Colomb, Duke of Edinburgh, General Jacqueminot, Prince Camille de Rochan; red—Ulrich Brunner, General Washington, Jubilee; pink—Magna Charta, Paul Neyron, Mrs. John Laing, Mde. Gabrielle Luizet, Bar-



An Amateur's Water Garden—See Next Page

to follow, the soil must be deeply cultivated.

TRENCHING AND MANURING

The ground should be trenched at least eighteen inches or two feet, all depending on the subsoil. If it is possible to go two feet, or even three feet, without striking gravel or sand or other poor quality of soil, it will be all the better; for roses, especially hybrid perpetuals, are very deep rooting.

First take out your first trench eighteen inches to two feet wide, wheeling all that comes out of it to where you intend finishing the operation. If trenching eighteen inches to two feet, put a layer of manure in the bottom, then put the top spit of the top of the man-

roots come in contact with the manure. The young roots when beginning to grow are unable to assimilate the rank food and consequently die. It may not seem necessary to tell this, but all too frequently inattention to whether the roots come in contact with the manure or not, is the cause of failure to grow roses. I had an example of this last spring, when I sold some rose plants to a certain gentleman. He came to me a few weeks later and said that his roses were dead. In answer to my questions as to his mode of planting he said, "I gave them every chance and I filled the holes full of manure before I planted the roses." My remark was, "You killed the roses with kindness." This mistake often happens with the beginner, not only with roses, but with other plants as

*A portion of a paper read at a meeting of the Ottawa Horticultural Society in June.

oness Rothschild, Mrs. Sharman, Crawford; white—Frau Karl Druschki, Margaret Dickson, Mrs. G. Bruant.

TEAS

Maman Cochet, pink and white; Marie Van Houtte, yellow; The Bride, white; Anna Oliver and Edith Clifford.

HYBRID TEAS

This is the finest class of rose grown, but a little more tender than the hybrid perpetuals. The following varieties can be grown successfully in this locality:

Bessie Brown, creamy white; Mde. Caroline Testout, salmon pink; Mildred Grant, white; Lady Battersea and La France, white and pink; Killarney, suffused pink; and Lady Ashton.

POLYANTHA CLIMBING ROSES

Crimson Rambler, bright crimson; White Rambler; Dorothy Perkins, shell pink; Lady, deep rose.

POLYANTHA DWARF

Baby Rambler, Mignonette, Perlee, The Pet or Red Pet.

Sedum Spectabile

Wm. Hunt, Ontario Agricultural College, Guelph

THIS showy species of the "Live-for-Ever" family of plants is not seen as often in the hardy flower border as its attractive beauty and usefulness warrants. Coming into flower

of a weaker growth and less floriferous than the specimen shown in the cut. This fact and, as it is well known that most of the "Live for Ever" or "Stone Crop" family of plants are suitable for

middle so that the tops would come just to the bottom of this basin, and the surface of the basin was cemented to the level of the lawn. The barrels were half filled with very rich soil and were then ready for planting.

In each of the end barrels we put a water-lily, *Nymphaea Gladstoniana* in one, and *Nymphaea Marliacea* var. *rosea* in the other. In the centre barrel we planted rushes and a giant arrowhead (*Sagittaria* sp.) and then partly filled the basin with water. This done, we placed a water hyacinth and a water poppy on the surface and, as the lilies grew, increased the supply of water until the basin was full. The water is supplied by means of the garden hose. No drainage is required, the sun causing considerable evaporation. The water garden thrives without any other attention and is a source of unending interest to ourselves and our friends.

Potash as a Fertilizer

F. T. Shutt, M.A., Chemist, Dominion Experimental Farms.

Wood ashes, long the only form of mineral fertilizer used in this country and certainly a form of potash that cannot be excelled, are fast disappearing from the market. Wherever obtainable in the unleached condition, at reasonable prices, the market gardener and orchardist should never hesitate to purchase them. Of good quality they will contain between five to six per cent. of potash and two to three per cent. of phosphoric acid. They also possess from twenty to thirty per cent. of lime, a very useful amendment on many soils. For vegetables and small fruits from one half to one ton per acre may be used.

Sulphate of potash, muriate of potash and kainit are all used in the compounding of fertilizers. The two first contain in the neighborhood of fifty per cent. of potash, the latter, kainit, about twelve and one half per cent. of potash. Sulphate of potash is more desirable than the other two named for certain classes of crops—e.g., potatoes and tobacco—but for the majority of garden crops there is no objection to the muriate or kainit. The one source of these potash compounds are the mines at Stassfurt, Germany. Of the sulphate and muriate, the usual dressing per acre is from 100 to 150 pounds; of kainit, from 400 to 600 pounds.

This, and what has been published in the last two issues of THE CANADIAN HORTICULTURIST, is a very hasty and imperfect account of these fertilizer ingredients, but to go further into details, interesting as they are, is now impossible, for we must say something of the requirements of the various market garden crops. This question will be discussed in the September issue.



Sedum Spectabile Roseum—An Excellent Plant for the Hardy Flower Border

as it does usually in September when there are so few of the occupants of the perennial border in flower—except the yellow autumn flowers—the beautiful lavender pink flowers of the variety shown in the cut are most conspicuous and pleasing.

The variety shown is known as *Sedum spectabile roseum*, and was planted in the college borders three years ago, having stayed there each winter without any protection save the ordinary covering of snow. Contrary to general supposition that it flourishes best in rather stiff soil, this specimen is planted on a piece of high, light soil in the border, the subsoil being well drained by a quantity of old mortar rubble.

Another plant that I have planted on lower, moister ground does not flower nearly as well as the one noted, being

rockeries and dry positions, leads me to think that a moist situation or a stiff soil should not be recommended for this plant.

It is herbaceous in character, dying down to the ground in winter, hence could be easily protected if desired. Its honey-scented flowers are very attractive to bees and butterflies and other winged insects, as will be seen by the cut. The plant grows to about two feet in height.

An Amateur's Water Garden

T. W. Armitage, Toronto.

The illustration on page 168 shows an amateur's first attempt at a water garden. In constructing the pond which is about fifteen feet long by eight feet broad, the earth was shelved out to a depth in the centre of about a foot, and three half barrels sunk in a line in the

Greenhouse Construction for Vegetable Growers

Robt. W. King, Toronto

WHEN contemplating the erection of a glass house for vegetable growing, the first question that broadly presents itself is "what is the best kind of a house to build?"

A very good article on greenhouse construction for vegetable growers by J. D. Fraser, Leamington, Ont., is published in the annual report for 1907 of the Ontario Vegetable Growers' Association. From his experience, the following pointers may be gleaned:

1. Greenhouses should be sheltered from the wind.
2. In no case is it advisable, either for defence or protection, to exclude sunlight. "Admit," he says, "every possible ray of sunlight."
3. Discard wood as much as possible.
4. For supports, use gas pipe set in cement.
5. For sash bars and other necessary wood work, cypress is preferred and must be painted.

6. Vegetables, for proper finishing, require a free circulation of air and lots of ventilation.

7. There is not sufficient air in very low houses.

8. Mr. Fraser builds houses with fourteen feet spans, connected in blocks up to 100 feet wide; but for a house only thirty-five to forty feet wide, he prefers a single span.

9. Large houses are easiest to heat.

10. Don't give a man a contract to put in pipes unless you are sure he knows how to do it. "The ordinary plumber doesn't know anything about heating a greenhouse."

As regards nine of the ten pointers quoted from Mr. Fraser's paper, it is needless to refer to any authority, either in support or contradiction. The only one not accepted or that called forth any question from the numerous experts assembled was No. 8 which refers to the width and height of the houses. And this has been just as much a question with florists with whom we have associated for the last fifteen or more years, as it is with the vegetable men to-day.

LIGHT AND VENTILATION

There are some plants and flowers that like shade and others that thrive better in the sun, but they all want light and air. As the art is not to succeed under glass in the summer when the sunshine and light is in plenty, so much as to produce during the dark days of winter when prices are up and the sun is down the nearest approach to summer out-of-door conditions, we want it in our power to admit every possible ray of light, even if we have to do some shading in the summer months. As regards the construction of the houses for ventilation, as much as is required should be secured for the summer months with as little increase as possible to the shadow of the sash during the darker days in winter.

SINGLE VS. CONNECTED HOUSES

Regarding the width of houses, the question of the day seems mainly to be between blocks of comparatively narrow houses built high and single separate houses of widths ranging from forty to sixty feet. For commercial purposes, the low, narrow, *single* house has long since become one of the mistakes of the past.

The advantages claimed for separate houses are: (1) The additional light on the first bed facing the south, the houses being placed a good distance apart; (2) the ability to obtain side ventilation; (3) in the colder climates the avoiding of the

piling-up of snow in the valleys, especially where the colder temperatures are required to be maintained.

The disadvantages are the extra expenses in a large plant of houses, of the said outside walls and side ventilating, together with the large extra cost per square foot of growing surface for real estate, fuel and boiler plant to heat the same. This has led to the present idea (by advocates of separate houses) of building them extra wide until in a case of a house 150 feet wide by 500 feet long, a whole block is enclosed in a single span, but in such cases, there is no more advantage as regards side light than would be obtained in a block of narrower houses of the same size.

In such houses, other objections materialize, as, for instance, the large extra amount of end glass to install, wind braces and heat in the winter. Another objection is the limited amount of ridge ventilation practical to be installed, also

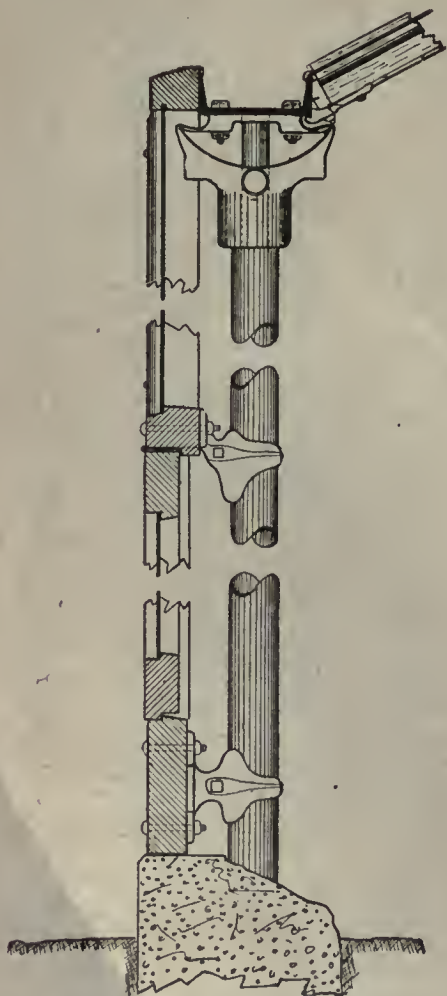


Fig. 1. Sash Being Used for Side Ventilation

Where a large amount of side ventilation is required, side sash can be hinged at the eaves, or where the eaves are too high a header may be run along the sides of the house, and the sash hinged to it as is shown in the illustration. The header is carried by special brackets bolted to the posts.

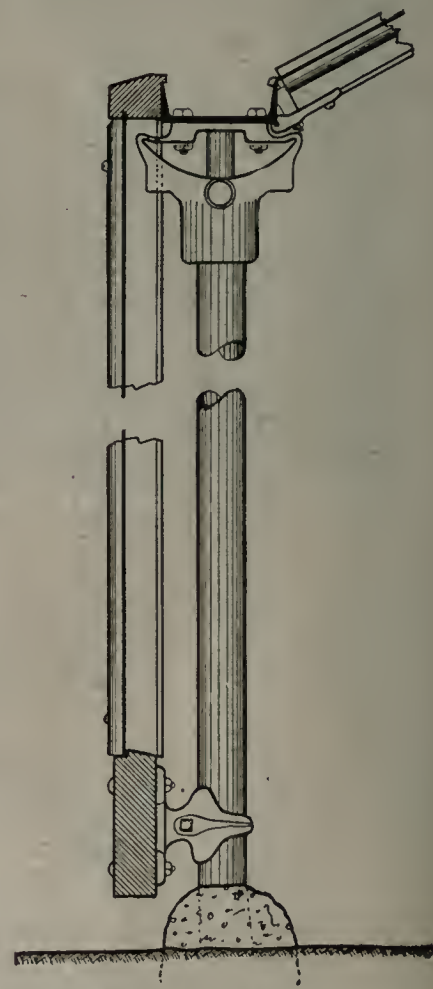
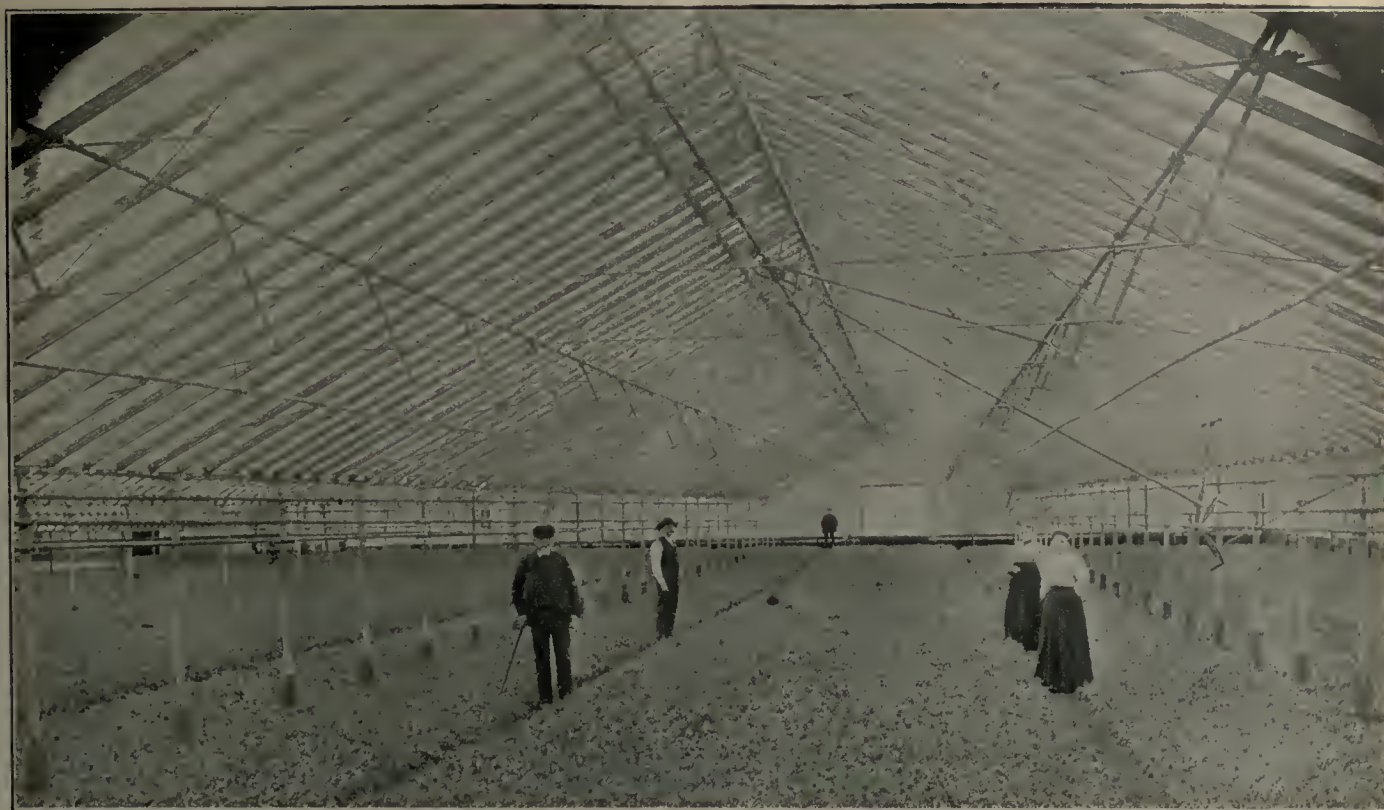


Fig. 2. Method of Ventilation at the Ground

The glass over the wall is intended to reach to within one foot of the ground. The wall is formed by setting a two by six plank edgewise. The plank is carried by special brackets bolted to the posts of the house. An opening is left at ground for ventilator which can be banked up in cold weather.



A Large Vegetable Growing Plant in Pennsylvania, Erected by King Construction Co.

Note that heating pipes are sufficiently high to permit the ground being plowed and cultivated with a horse. The large door at the end of each house will allow a team and waggon to enter with manure, also machinery for cultivating and for other purposes.

the difficulty of getting at the glass for repairs. Nevertheless, a house 150 feet wide by 500 feet long has been built and is claimed to be a commercial success. The popular question at present as to size of house for a man to start with, allow for extension as his business grows, seems to hinge around connected houses of twenty-one feet, eight and a half inches, using twelve foot sash bars, lumber length, and twenty-five feet, two and a quarter inch, using fourteen foot bars, or, where land is sufficiently plentiful, separate houses of not less than forty to sixty feet in width.

In the connected houses, continuous single ventilation is usually installed but if extra ventilation is required, then ventilation each side of ridge can be used and the King construction ventilator is such that the extra side can be added afterwards if required, using the same glass that was in the roof without cutting.

In these houses, also, the lightest sash bar, No. 6, can be used in the roof. Owing to the extra light-admitting qualities of this bar, the advantage gained by its use will outweigh many objections that can be raised against it. The number of valley gutters required gives easy access to the roof for repairs and when of iron, as they should be, present sufficient surface for drainage and the melting of snow with reasonable rapidity. The nar-

rower span, twenty-one feet, eight and a half inches, is recommended where weather conditions are the more severe. Otherwise, the standard twenty-five feet spans have met with much success and are cheaper to install.

For the separate houses averaging fifty feet span, ventilation both sides of the ridge should be used since as regards amount, this is only equal to single ventilation in the block previously referred to. If more ventilation is required, however, side ventilation can be resorted to. It is held by growers, however, that side ventilation in wide houses, being only local, is a poor substitute for proper or sufficient ventilation at ridge.

In resorting to side ventilation in order to create a current of air (which, however, is looked upon by some as of the nature of a draft and injurious in many cases), as Mr. Fraser remarks, the opening should be low down, thus drawing the coolest air into the house. In working with the growers in the Great Tronquait vegetable growing district of the United States, a cut of one of whose houses is here shown, the King Construction Co. has met some of the demands for side ventilation, by the plans shown in Figs. 1 and 2, which we explain as follows: The glass in the side of a vegetable house should reach within one foot of the ground, where weather conditions will admit, but in this country

where snow is plentiful and liable to bank up against the walls, two feet or in an extra wide house, even more dead wall may be necessary.

In some cases, in the district referred to, an opening is left under the framing of the sash (See Fig. 1) which is banked up in the winter. In other cases, side sashes are hinged to the eave, or where eaves are too high, a header is run along the side of the house as in Fig. 2, to which the sash is hinged.

(Continued on Page 173)

About Tomatoes

The illustration on our front cover represents the tomato patch of Mr. Jas. A. Woods, of Stratford, Ont. The variety staked is Livingstone's Globe and the others, Livingstone's Favorite. The photograph was taken two years ago on August 2nd. According to Mr. Wood, the Erlana and varieties of that type are not successful in his locality, either in crop or quality.

When writing of the location, Mr. Wood said: "The elevation here is about 1,200 feet above sea level, or say 950 feet above Lake Ontario. The June frost is our chief dread. Scientifically, it may have nothing to do with it, but practically this frost is co-incident with the full moon."

The Canadian Horticulturist

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PETERBORO AND TORONTO



The Only Horticultural Magazine in the Dominion

OFFICIAL ORGANO OF BRITISH COLUMBIA, ONTARIO, QUE-
BEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND
FRUIT GROWERS' ASSOCIATIONS AND OF THE ONT-
ARIO VEGETABLE GROWERS' ASSOCIATION

H. BRONSON COWAN,

Managing Editor and Business Manager

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W. G. ROOK, Advertising Manager

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6. Articles and Illustrations for publication will
be thankfully received by the editor.

CIRCULATION STATEMENT

Since the subscription price of The Canadian
Horticulturist was reduced from \$1.00 to 60 cents
a year, the circulation has grown rapidly. The
following is a sworn statement of the net paid
circulation of The Canadian Horticulturist for
the year ending with Dec., 1907. The figures
given are exclusive of sample and spoiled copies
and of papers sent to advertisers. Some months,
including the sample copies, from 10,000 to 12,000
copies of The Canadian Horticulturist are mailed
to people known to be interested in the grow-
ing of fruit, flowers or vegetables.

Circulation Statement

January, 1907.....4,947	January, 1908.....7,650
February, 1907.....5,520	February, 1908.....7,824
March, 1907.....6,380	March, 1908.....8,056
April, 1907.....6,460	April, 1908.....8,250
May, 1907.....6,620	May, 1908.....8,573
June, 1907.....6,780	June, 1908.....8,840
July, 1907.....6,920	July, 1908.....9,015
August, 1907.....6,880	
September, 1907.....7,080	
October, 1907.....7,210	
November, 1907.....7,257	
December, 1907.....7,500	

Total for the year, 79,525

Average each issue in 1907, 6,627

Sworn detailed statements will be mailed upon
application.

Our Protective Policy

We want the readers of The Canadian Horti-
culturist to feel that they can deal with our
advertisers with our assurance of the advertisers'
reliability. We try to admit to our columns
only the most reliable advertisers. Should any
subscriber, therefore, have good cause to be
dissatisfied with the treatment he receives from
any of our advertisers, we will look into the
matter and investigate the circumstances fully.
Should we find reason, even in the slightest
degree, we will discontinue immediately the pub-
lication of their advertisements in The Horti-
culturist. Should the circumstances warrant
we will expose them through the columns of
the paper. Thus, we will not only protect our
readers, but our reputable advertisers as well.
All that is necessary to entitle you to the ben-
efits of this Protective Policy is that you include
in all your letters to advertisers the words
"I saw your ad. in The Canadian Horticulturist."
Complaints should be sent to us as soon as pos-
sible after reason for dissatisfaction has been
found.

Communications should be addressed:

THE CANADIAN HORTICULTURIST,
Toronto Office: PETERBORO, ONTARIO
72 Queen Street West.

EDITORIAL

BRITISH COLUMBIA INSPECTION

Our editorial in the June issue, entitled,
"A Warning," was reproduced in the *B. C.
Saturday Sunset*, which, in an article
headed, "Be Fair," challenges our state-
ments in the following words:

"We must admit that San Jose scale,
"and other pests, are prevalent in the
"neighboring states, but they are also
"prevalent in Ontario, and we are quite
"sure that *The Horticulturist* is in error
"when it says that the 'blundering in-
"spectors threw out one lot of Cox's
"Orange Pippins, because their appear-
"ance was unusual.' Cox's Orange
"Pippin is not a stranger in British
"Columbia, and its appearance and hab-
"its are well known to the fruit-pest in-
"spectors, and notwithstanding the pos-
"sible mistakes of these inspectors, it
"is not true that 'the British Columbia
"Government discriminates against clean
"healthy Eastern nursery stock.'"

No person has denied that there is scale
in Ontario, but it is confined to a compar-
atively small area of the province, and, be-
sides, a number of Ontario nurseries are
not located in the scale-infested district.
The Ontario Government, to protect On-
tario growers, insists that all nursery
stock grown in the province shall be fumig-
ated under the direction of a Government
inspector. This fumigation covers the
stock shipped to British Columbia. Last
spring one of these inspectors personally
inspected all the shipments that were sent
to British Columbia, from one of Ontario's
largest nurseries, and wrote a letter testi-
fying that the stock was free of scale and
disease, and in a healthy condition, and
that it was fumigated under his personal
supervision. This letter was handed to the
inspectors at Vancouver, but they declined
to accept the statements in any way. It
would seem, therefore, that there should be
some reciprocity between the departments
of agriculture in the different provinces in
reference to this matter of inspection.

In regard to the Cox's Orange Pippin
blunder, these trees were claimed by the
British Columbia inspectors to be infested
with San Jose scale. The consigning
nursery firm demanded that specimens
be sent to them. This was done. Later
the trees were sent to the Experimental
Farm, at Ottawa, and, upon close inspec-
tion, were found to be affected only with
the oyster-shell scale, a comparatively
harmless pest.

THE CANADIAN HORTICULTURIST has re-
ceived numerous letters from British Col-
umbia growers, to the effect that they want
Ontario stock, but do not feel that they
can accept the risk of planting such stock
when it is subject to double fumigation,
and an over-handling at Vancouver. The
following is an extract from one from
Kelowna: "Ontario trees are just what we
want in this province, as they are from a
colder climate, and are hardy, but they are
too long on the road. They should come
direct to Vernon, instead of going first to
Vancouver."

The *B. C. Saturday Sunset* fails to see
that eastern nursery stock is discriminated
against. Even accepting the fact that
scale is in the east, as well as in the west,
why do eastern nursery concerns have to
ship for inspection right across British
Columbia to Vancouver, while United
States stock can be shipped only across the

border, and be inspected, practically, at
the port of entry? The British Columbia
Government does not compel United States
stock to be shipped for inspection across
the province to Revelstoke or Golden. THE
CANADIAN HORTICULTURIST thinks that
Ontario, and other eastern provinces, as a
part of our great Dominion, should be en-
titled to, at least, as much consideration
as the Western States. All that eastern
nursery men ask, and all that our British
Columbia correspondents desire, is another
inspection station established at some east-
ern point in British Columbia, so that
nursery stock from eastern Canada can be
imported without any extra delay and any
extra expense in shipping. And that is the
position of THE CANADIAN HORTICULTUR-
IST. We do not ask for discrimination
against United States concerns, nor against
the nurseries of the Coast. We ask for
no favors for eastern nurserymen that are
not given to those of the west. We do
ask the British Columbia Government to
establish another inspection station, and
The B. C. Saturday Sunset to "be fair."

INSPECTORS FOR ASSOCIATIONS

To give distinction to The Co-operative
Fruit Growers of Ontario, an organization
with which is affiliated most of the local
co-operative fruit associations in the prov-
ince, and to aid its recognition in foreign
markets, it should adopt a brand for the
use of all affiliated associations that are
worthy. The brand need not necessarily
be used by the local associations exclusiv-
ely, but in addition to the local brand. It
would identify them as members of the
provincial organization, which will soon be
powerful and strong, particularly if incor-
porated, as is now proposed.

No local association should be allowed
to use the provincial brand, however, un-
less it grades and packs its fruit in accord
with The Fruit Marks Act, and with the
standard set by the central organization.
The Dominion Department of Agriculture
can lend a helping hand in this matter by
appointing special inspectors to watch the
work and output of the local associations,
so that the latter may know that the de-
sired standard is being reached. Such
special inspection would be the means of
advertising Ontario fruit through the asso-
ciations in a manner more satisfactory than
any that has been tried in the past.

SIGNING NURSERY CONTRACTS

Is there any line of merchandise in which
there is so much fraudulent practice and
over-charging as there is in the case of nur-
sery stock? We have recently received a
contract for stock signed by a customer,
which reads as follows:

"Please furnish me the following bill
"of nursery stock for the purpose of im-
"proving my property. Notice to be sent
"me of the date of delivery and if not
"called for on that day and a personal
"delivery made, I agree to pay expenses
"of same.

"I hereby waive all set off or exemp-
"tion law rights.

"I also agree not to countermand this
"contract; any article not furnished to be
"deducted from the bill. All nursery
"stock dying within five years will be re-
"placed at half original price."

The bill calls for four trees of the com-
monest kind, one Concord grape vine and a
dozen raspberries, for which the customer
is charged \$5.00. There would be excellent
profit in it if they had charged \$2.00.

It will be noted that the customer waiv-

ed all and every right which he had, so that even if the nurseryman could be reached by law, the buyer of the goods has practically put himself out of court by signing such a contract. The agent, who sold the stock, was not known in the neighborhood in which he was doing business, had no property in the country so far as was known and, therefore, was wholly irresponsible. Thus, it will be seen, that the customer has no chance of redress, should occasion require, either from the nursery firm or its agent. This contract was used by the Northwestern Nursery Co., Fife Lake, Mich.

We draw attention to this extraordinary contract with the purpose of warning our fruit growers and farmers against signing contracts and agreements without knowing exactly what they are signing. It is indiscreet, also, to deal with unknown agents, supposed to represent foreign nurseries, whether the nursery firm is well-known or not.

PURCHASE BARRELS EARLY

We wish to emphasize still further the wisdom of buying apple barrels early in the season. Coopers will sell much cheaper at the present time, and buyers of apples will buy the stock much more readily, if the owners have the barrels on hand. Indeed, this is very often an inducement by which the latter can get an advance of half the price of the barrels. Present prospects indicate that there will be a fairly large export trade this year, and barrels are sure to cost more after September than before.

There is no reason, also, why every grower should not estimate the crop which he is likely to have within the limit of twenty-five per cent., over or under. If, then, he orders for what he thinks is seventy-five per cent. of his crop, at the present time, in case his estimate should be too low, he will not have to buy more than twenty-five per cent. at higher prices. If his estimate should be higher, he will have, at most, only twenty-five per cent. to carry over, and, with proper care, will be out only his interest on a small sum for this. Think about this, and buy your barrels now.

Changes in Prize List

Several important changes have been made in the fruit prize list of the Canadian National Exhibition, Toronto. In the sections for plate fruit, the prize list calls for nine specimens on each plate, instead of five, as formerly. These sections cover apples, pears and peaches. In the case of plums, 20 specimens were called for instead of 12, as formerly. Prizes have been added for pyramids of fruit.

The object of the change is to insure a better display of fruit. The management of the exhibition has felt that the display of fruit in the past has not been as attractive as it should have been. It is believed that the prizes offered warrant these changes being made.

The latest report of the Dominion Chemist, Mr. Frank T. Shutt, M. A., Ottawa, contains much information of value to fruit and vegetable growers. The questions treated include the control of moisture in orchard soils, commercial fertilizers, insecticides and fungicides, analyses of apple pomace, and so forth. Write to the Central Experimental Farm for a copy.

Fruit Wrapping Machine

A fruit wrapping machine has been put in operation in California, says a correspondent of the *Country Gentleman*. It requires practically no attention, and entirely automatically wraps the fruit.

The fruit rolls down a slight incline to the operator, turning slowly over as it approaches him and giving him an opportunity to remove defective specimens. The fruit is lifted and placed, stem up, in rubber cups, which carry it to a mechanism operating much as the human hands. It is carried to the paper being cut and printed from the roll. The twist of the paper is made over the stem ends, thus cushioning the stem and preventing puncture injury. If the machine becomes clogged, it is stopped by a clutch operated by electricity. A counting attachment registers the number wrapped.

A Fruit Drying Process

An invention which produces "naturally dried fruit" in an "artificial manner" by a hot air process, has just been tested before experts in California, and proven highly successful. The fruit is laid in trays, constructed of wire netting, and a continuous draught of air heated to 150° is forced through the fruit. Moisture extracted is carried away through an air stack and by control of heat and air, nature is closely imitated.

The new process is claimed to do the work in two weeks' less time than the field drying method, and with the same result. The first tray of fruit, which happened to be prunes, taken out of the dryer was acknowledged by the experts to be exceptional. When weighed to ascertain the shrinkage by the new method compared with the old, an increase of 10 points was noted in favor of the hot air.

Profit in Spraying

The Nebraska Experiment Station has just issued Bulletin No. 106 entitled, "Does it Pay to Spray Nebraska Apple Orchards?" The Bulletin contains much information of value to Canadian fruit growers.

The spraying operations from which the records published in the bulletin were obtained were conducted in two orchards. The purpose of the work was to demonstrate the proper methods of spraying apples; and to determine whether, under the conditions existing in Nebraska, it pays to spray. The materials used were Bordeaux mixture and Paris green in the first three sprayings; and arsenate of lead alone in the last two sprayings.

The cost of spraying in one orchard was about 29 cents per tree for four sprayings, and in the other orchard about 40 cents per tree for five sprayings. Spraying produced a net gain per tree above the cost of spraying of \$1.70 in one orchard, and \$2.56 in the other orchard. It increased the yield of fruit by 1.7 bushels per tree in one orchard, and by 2.1 bushels per tree in the second orchard. The improvement in quality of fruit was also very noticeable. In one orchard the sprayed trees produced about 45 per cent. of No. 1 fruit while the unsprayed trees gave only 4 per cent. of No. 1 fruit. In the other orchard about 62 per cent. of the crop on the sprayed trees was first class fruit while only about 22 per cent. of the crop on unsprayed trees was first grade.

Suggestions are given in regard to methods of preparing and applying spray mixtures, and various arrangements for convenience in the work are pointed out. Five sprayings are recommended, as follows:

First—After the cluster buds open, but before the individual flower buds expand (usually late in April).

Second—Just after the petals fall (usually early in May).

Third—Three weeks after the blossoms fall (usually early in June).

Fourth—Ten weeks after the blossoms fall (commonly late in July.)

Fifth—Three weeks later (commonly about the middle of August).

Marketing Muskmelons

A bulletin has been issued by the Agricultural Experiment Station of Illinois on "Marketing the Muskmelon." This is a summary:

The leading type of muskmelon grown in Illinois for the general market is the Netted Gem, and the matter presented in this bulletin has special reference to the marketing of this type.

Illinois Gem melons intended for shipment to the Chicago market should, as a rule, be picked as soon as the fruit will part readily from the stem, but not before.

Well graded melons sell better than ungraded stock.

The quality of a melon is the primary factor which determines its grade. The relation between the netting of a melon and its quality, makes it possible to grade melons with extreme accuracy as to quality, on the basis of netting.

The full benefit of grading cannot be secured unless methods of packing are employed which will enable the melons to present an attractive appearance upon the market.

Different styles of pack should be adopted for melons of different sizes.

A convenient packing shed facilitates proper grading and packing.

To handle the melon crop properly, the working force must be thoroughly organized, and each person trained for his particular duty.

The most satisfactory way of supplying melons to the smaller cities is to ship directly to one high-class retailer in each city.

The safest plan to follow in shipping melons to a large city market is for the grower to make arrangements with some trustworthy commission firm to handle his entire product.

Landscape Gardening

One of the most notable personages in the art of landscape gardening that ever lived and one whose works and writings have been felt throughout the avenues of experience during the past century was Humphrey Repton of England, 1752-1818. He was a master in the science and practice of landscape architecture. Two of his best works are: "Sketches and Hints on Landscape Gardening" and "The Theory and Practice of Landscape Gardening." These two books have been re-printed and illustrated in modern form and have been issued in one volume under the title of "The Art of Landscape Gardening," edited by John Nolen, A.M., member of the American Society of Landscape Architects, and published by Houghton, Mifflin & Co., of Boston and New York. The price of the volume is \$3 net.

The work is a classic in landscape architecture. Its preparation has been carefully done. Its illustrations are high class. It deserves a place in the libraries of all persons interested in the laying-out and management of grounds.

Prepared Spraying Materials

The Maine Agricultural Experiment Station is now mailing Bulletin 154 which contains analysis of Paris greens and prepared Bordeaux mixtures as sold in Maine in 1907. The following extracts and conclusions of interest to Canadians as well as Maine growers, are taken from the bulletin:—

"The ideal Paris green would carry a maximum amount of arsenious oxide in combination with copper; it would have as little as possible of free arsenious acid, so as not to burn the foliage; and it would be in the finest possible powder in order that it may readily remain in suspension when mixed in water and that it may be more thoroughly distributed."

All of the Paris greens sold in Maine were found to carry sufficient arsenic. One largely used brand was found to be poorly made as shown by the coarse particles and an excessive amount of soluble arsenic. "The reported cases of burning of foliage and failure to kill the potato bugs reported from some users of this green may perhaps be explained by these analyses."

The commercial Bordeaux mixtures are discussed from the standpoint of their chemical compositions, their effectiveness and economy. "The large grower rarely, if ever, can afford to purchase prepared Bordeaux mixture at any price at which they have been or can be offered. To say the least, freshly prepared Bordeaux mixture is in as fully as good form to serve as a fungicide as old mixture. It apparently adheres to foliage better than old. There seems, therefore, to be little or no reason for the large grower to use ready made wet Bordeaux mixture. The experiments conducted at the station clearly indicate the unwisdom of dust spraying for potatoes. Until some marked advance shall have been made in the preparation of commercial Bordeaux mixtures, wet or dry, they do not seem to fit in to the economical and effective combatting of the fungous diseases of the potatoes."

Remedies for Cutworms

Last year, much alarm was created by outbreaks of the variegated cutworm in various parts of Ontario. A serious outbreak of this pest occurred in British Columbia in 1900. The caterpillars attack clover crops, tobacco, corn, tomatoes and other vegetables, and they climb fruit trees and destroy both leaves and fruit. The following remedies are suggested by Dr. Chas. J. S. Bethune, O.A.C., Guelph:

"The most effective remedy for these nocturnal marauders is the poisoned bran mash, which is made by mixing half a pound of Paris green in 50 pounds of bran (the proportion for larger or smaller quantities is 1 to 100); the poison should be added to the dry bran little by little and stirred all the time till the whole is tinged with the green color, then add water sweetened with sugar or molasses till the mixture is sufficiently moistened to crumble nicely through the fingers. If bran cannot be procured, shorts or flour may be used and for field work may be distributed dry by means of a seed drill. The mash is sprinkled about the plants at sun-down and after dark the worms come out and eat it in preference to the vegetation and then go off and hide, usually in their places of concealment. Paris green, half a pound to 40 gallons of water may be used on many plants with much advantage."

"When the worms are very numerous

and are moving on from one field to another, their progress may be checked by ploughing a deep furrow ahead of them—two about four feet apart would be better—in these, post holes are bored or dug from 12 to 16 feet apart. The furrows should be made in the morning so that the sides may be dry and reliable by night fall. The worms fall into them as they march and being unable to climb up the loose sides they travel along the furrow and fall into the post holes; there they will be found in dozens or hundreds in the morning and can easily be killed. Where the soil is stiff clay, this plan will probably not be so effective, as the worms may be able to climb up the sides and go on their way; reliance will then have to be placed in the poisoned bait. Where very numerous a heavy roller may be employed with advantage, if the soil, or crop will permit of its use. It must be remembered that live stock or poultry must not be allowed in any place where the poison is scattered."

Winter Killed Peach Buds

In bulletin No. 74, entitled "Winter Killing of Peach Buds as Influenced by Previous Treatment," and issued by the agricultural experiment station at Columbia, Mo., there is much valuable information for peach growers in Ontario. The results of experiments and conclusions drawn are summarized as follows:

"It is well known that the vigor of growth of a peach tree can be increased by heading back, by cutting off a considerable portion of the ends of the branches in late winter or early spring, when the fruit buds have all been killed."

"This is an excellent treatment to enable trees to recover from injury to the wood by severe winters."

"The fruit buds formed on this vigorous growth of new wood in sections north of Missouri are more liable to injury from the cold of the following winter."

"The buds on this vigorous new wood, however, finish their resting period later and are therefore not so readily started into growth by warm periods in winter to be killed by cold periods following."

"In Missouri, especially the southern half, there is in nearly every winter warm weather to start the buds into growth to a small or large extent."

"In most of Missouri then, fruit buds on trees that have made rather a vigorous growth, caused by reasonably severe heading back or by cultivation, are the less liable to winter injury. This has been true in the experiment station orchard and in others during each of the last two years."

"Heading back may be too severe, however, since in any year the fruit buds most likely to come through the winter safely are those at the base of the whips of new wood, and if the heading back has been too severe the growth will be so dense that no fruit buds will be formed at the base of those whips."

"In the experiment station orchard the trees having the smallest percentage of buds killed were those trained to a spreading, open head, and forced by pruning and cultivation to make a vigorous growth."

"The fruit on trees with spreading heads does not rot so badly as that on trees with dense heads."

"The fruit on trees making rather a vigorous growth, unless the growth is too vigorous, is larger than that on trees making smaller growth. This is true except with early varieties, where a tree making a rather small wood growth bears the better fruit."

"In the station orchard where only one side of a tree was thinned, the side not thinned had from five per cent. to 40 per cent. more of its fruit buds killed by a temperature of six degrees F. below zero on Feb. 5, 1907."

"Many varieties, like the Elberta, Crawford,

Oldmixon, and others, the fruit buds of which are known to kill badly, do so because they finish their resting periods early and are, therefore, easily pushed into slight growth on warm days in winter."

"Varieties of Chinese Cling and green-twigged types (excepting the Elberta, which has more the character of the Persian race) are generally late in finishing their resting periods and are therefore better adapted to climates like that of Missouri."

Coopers' Fluids

Many expressions of satisfaction with the new spray fluids, V₁ and V₂, are being received by Messrs. Wm. Cooper and Nephews, 506 and 507 Manning Chambers, Toronto. Among the letters received recently are the following:

H. A. Farrow, Bowmanville Ont.: "Upon examination I find that my trees sprayed with your V₁ present a much cleaner and better appearance than those unsprayed."

Robert Collacott, Bowmanville, Ont.: "I have examined my trees after spraying with your V₁ Fluid, and find them very clean and healthy. The bark louse has, without doubt, been successfully treated."

J. K. Allen, Newcastle, Ont.: "I have used five gallons of your V₁ and V₂ Fluids on my orchard of 450 apple trees. The orchard now looks very healthy and clean, the foliage particularly being full and healthy, and there are very few, if any, live bark-lice on the trees now."

F. F. Barker, Burlington, Ont.: "I used the gallon you sent me on young trees, currant bushes, tomato plants, and found it effective, especially with the potato bug, which completely collapsed, and were quite dead within five minutes from sprinkling, and this was from actual test. I, therefore, presume that the effect on smaller insects would be greater still."

White and Grace, Port Dalhousie, Ont.: "We applied the V₁ Fluid during the first week of April, to pear, apple, plum and peach trees to see what effect it would have on the San Jose scale, with which all the trees sprayed were more or less affected. The bulk of our trees were sprayed the last two years and this year with the lime-sulphur wash. So far as we can judge at present, the trees sprayed with your V₁ Fluid are absolutely free from scale, and present a singularly healthy appearance, while for ease in handling and great covering capacity, your fluid is far preferable to the lime-sulphur wash. We expect to make a test of your V₂ Fluid this season and will report the result."

Canning Small Fruits

Make a syrup for each quart of blackberries, of one cup of sugar and one cup of water, skim it and let boil 10 minutes, then put in the fruit and allow it to boil eight minutes.

Red raspberries may be put up in the same way, or if you wish to spend a little more time and have the fruit as perfect and fragrant as when fresh picked, put it in jars, cover and set into boiling water, leaving it there about 10 minutes. If the berries settle, put in more. Then pour in boiling syrup till the jar is filled to overflowing.

Before considering the purchasing of nursery stock elsewhere, the fruit growers of British Columbia will do well to get the catalogue of Mr. M. J. Henry, Vancouver, B.C. Mr. Henry grows a large assortment of fruit and ornamental trees and plants.

Greenhouse Construction

(Continued from Page 169)

In locations where, on account of snow, the side glass will have to be kept up two or more feet, a good arrangement would be to use the ordinary King side wall modified by hinging the dead wall below the plate, or otherwise to make it removeable entirely, which can be arranged.

Before the subject of ventilation can be rightly understood, it is necessary to theorize to some extent. To obtain proper ventilation, sufficient openings must be made in the roof to allow the over-heated air to escape, while cooler air, due to its extra weight, will force itself in (even through the same aperture, if necessary) to take the place of the warmer air, whose lightness causes it to ascend. Thus we get the exchange of air necessary to the growth of plants, and which must be brought about, to some extent, even in the dead of winter, at the cost of fuel for heating. But that is not all the question. What is usually complained of may not be so much a lack of change of air, as it is the intense heat of radiation, due to two kinds of glass.

KINDS OF HEAT

There are two kinds of heat to consider. One is heat from convection; the other is heat from radiation. Convected heat is such as travels in currents of air, and can be carried away by a process of ventilation, by which movement of the air is produced. Heat from radiation is that scorching heat due to too close a proximity to some over-heated body in the open air, and by which even the moving of the surrounding air may increase the distress that the heat is causing. Above us, we have the scorching sun playing its heat on the glass. Glass intensifies, rather than obstructs, the heat of radiation. In the lower strata we have the cooler radiation from Mother Earth. Following this theory to its legitimate conclusions, you may find a very good and convincing reason why, if other conditions are not allowed to interfere, or be in themselves deficient, with glass carried high over head, mainly in high houses, they can be made cooler in summer and warmer in winter, than any houses where the glass is low. So that when you are considering the getting rid of the convected heat in the nature of over-heated air that needs to be exchanged, you may as well consider the injurious effect of the heat of radiation from the glass in winter, and move it further away from your growing space.

Build your houses, no matter for what purpose, roomy, to give lots of air, and evenness of ventilation, and reasonably high, to get away from the heat of the glass in summer and the cold in winter. The best way to insure this effect will not be to set up air currents in the houses so much as to obtain as even a distribution of ventilation as possible throughout the whole of the block, not looking so much upon getting one bed in a big house better than the rest, as to get all parts of the house equally good.

SOME CONCLUSIONS

The practical conclusions to be drawn from the theories advanced are, to keep your glass up, that separate houses, with side walls not less than six or seven feet high, should be built wide, say up to 40 to 60 feet, and should have double ventilation at the ridge, side ventilation being left optional with the grower, according to the requirements of the stock raised. The wider houses have an advantage in the

glass being higher on the average than in a narrow house with side walls of equal height, and in having a less area of glass to heat per square foot of growing space. Hence the claim that the larger houses are cooler in the summer, and easiest to heat in the winter.

For blocks of connected houses, a reasonably wide span should be used (up to 25 feet) but to obtain as good results as in the separate houses, due to the elevation of the glass, the side walls should be higher.

Now comes the question: "How high should they be?" Not to be thought a crank on the question of high glass, allow me to say that this question depends largely on the size of the blocks you are going to build. If it is a small block or a single house of a block to start with, you cannot afford high outside walls, because it takes too much fuel and heating plant to heat them, especially with the glass kept low, and on the north as well as the south side, as it should be. But, as the size of the block increases, the proportion of outside walls decreases until it is practically of very little consideration. Then you can well afford to keep your outside walls higher, eventually striking as good an average for height of glass. Or, better, if you like, than is to be obtained in the example of a single house first referred to, an idea that presents itself at this point, is that in building a block of houses, one could start with a standard height of out-

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side wall, and keep raising the gutters towards the centre of the block.

Having quoted from Mr. Fraser's paper as authority for vegetable growing in a district where, he says, they have very little snow, I may, perhaps, be excused for referring to a personal conversation with, perhaps, the largest vegetable grower in Canada down east, where the snow loads are most extreme, and who is, in consequence, afraid of ridge and valley houses, and who has recently returned from a trip through the vegetable-growing districts of the United States. He is in favor of the wide single houses with roof of skeleton construction, so as to admit lots of light, and also of keeping the outside walls up higher than he has previously been accustomed to.

TO EMPTY A HOUSE

In regard to emptying a block of houses at the side rather than at the end, this, apparently, is a hobby of Mr. Fraser's. Mr. Fraser advocates a main walk in the centre, and then narrow footpaths leading from it to the side, driving his team along side of the house when disposing of its load, but since he makes his block of houses 100 feet wide, it does not appear what advantage, as regards the loading, is to be obtained in comparison with loading the team at the end, having, say, a centre walk in each house section, with an outside door at the end, through which a handcart, or barrow, can be run in the

more usual manner, or a horse and cart for that matter.

In regard to the heating of a vegetable house, having due regard to the possibility of introducing horse power in the working of the same, a bank of pipes may be supported on each row of valley posts with a pair of pipes higher up or just under the gutter on either side. Then, there should at least be a corresponding quantity of piping in the centre of each section of house to counteract the current of cold air that otherwise would fall from the roof, and especially from the ventilating sash, when open in winter. This bank of pipe may be put on special supporting uprights, set in the ground, corresponding to the valley and wall, supporting posts so as to be low down near the ground, or, what may be better still, to have this bank of pipes more widely separated, and hung over head, so as to leave the whole space of each span clear for cultivation, and, at the same time, give a more even distribution of the heat.

It is worthy of note that in the North Wales house, over 150 feet wide, after putting a reasonable amount of pipe on the two outside walls, the main body of the piping is hung on the roof, directly under the glass. If this answers at all satisfactory (and it is claimed that it does) then, surely to hang fifty per cent. of the piping—only, say, eight or nine feet from the ground, should be all right. One of the arguments in favor of this plan is that, naturally, heat comes from above, and that the thing to avoid in winter is the falling of cold air from the glass by compelling it to first pass the heating pipes. If this plan is tried, it will be well to keep the pipes pretty well up, and not immediately over the walks, as a heating pipe too near the heads of the workmen is liable to cause some distress in the way of headaches.

Ringling Herbaceous Plants

"Ringling" is a practice sometimes employed to apparent advantage in vineyards, as by it the bunches of grapes are in some cases made larger and earlier. It seemed feasible to apply the same practice to herbaceous plants, but test made upon tomatoes and chrysanthemums at the experiment station at Geneva, N.Y., proved the theory fallacious. With neither class of plants was there any gain in yield, increase in size or hastening of maturity; but in nearly every case the ringling was detrimental. So marked was the injurious effect in many instances, especially upon the root systems of the plants, that the experimenters doubt whether the practice is not more injurious than useful, even upon grape vines where the apparent advantage is most evident. These tests are recorded in bulletin No. 288 of the station.

Fertilizing Old Orchards

Bulletin No. 289, issued by the agricultural experiment station at Geneva, N.Y., teaches some important lessons on orchard fertilizing, as follows: That an orchard soil may not need potash, phosphoric acid, nor lime, even though the soil may have been cropped a half century; that in a soil which produces apples of poor color, potash and phosphoric acid may not improve the color; and that the apple does not seem to be as exhaustive of soil fertility as farm crops. The experiment suggests, as well, that to assume without definite knowledge that a tree needs this or that plant food often leads to the waste of fertilizing material; and that in the matter of fertilizing an orchard a fruit grower should experiment for himself, since an orchard's need of fertilizer can be determined only by the behavior of the trees when supplied with the several foods.

NOTES FROM THE PROVINCES

Kootenay Valley, B.C.

H. W. Power.

Despite the almost universal prevailing depression in business quarters, the settlement of Kootenay Lake fruit lands is going on merrily, newcomers taking up land at Creston, Crawford Bay, Kootenay Lake, Kaslo, Proctor and Harrop, the two latter points being on the west arm of Kootenay Lake. Burton City and Nakusp, on the Arrow Lakes, and the Howser Lake section are also receiving much attention. Fruitvale, a new settlement, near the boundary line, on the Spokane Falls and Northern Railway, is also thriving. The bulk of the newcomers are English, although a large number are Americans, and former residents of Alberta and Manitoba.

Ten years ago the sole industry in the Kooteney district was mining, but latterly horticulture is coming to the fore in an astonishing manner. The mountain valleys and lake benches have been demonstrated to be wonderfully fertile, strawberries and other small fruits, cherries, plums, pears, apples, peaches and grapes growing to perfection. Irrigation has been found unnecessary, the natural rainfall being sufficient for all needs. An eastern man would probably consider the area of good land limited, but the wonderful productiveness of the soil, due to a combination of climatic and other conditions, atone for this. Six

hundred dollars an acre for improved land is not an uncommon figure. Unimproved lands range all the way from \$50 to \$200 an acre.

Similkameen Valley, B.C.

The chief concern of growers here at present, is the question of transportation. While we have a fairly direct route to the most desirable market—the prairie provinces—it is necessary, in order to reach it, to ship over two roads, the Great Northern and the C. P. R. The Crow's Nest line of the C. P. R. is now building in this direction and will go through the heart of the valley, which will give a splendid direct route to the prairies. Both roads are also extending to the coast. When these lines are completed, our shipping facilities will be ideal.

D. F. Jelly, a prominent and energetic orchardist, has been appointed immigration agent for the Great Northern, and as he is also secretary for the Fruit Growers, is acting on his trips as their agent for looking up markets.

A point that has not yet been taken up here, but should be, is the effect of cottonwood trees on orchards. It is found in the older districts of Washington that these trees harbor insect pests, as might naturally be expected; and in certain parts of

the state the edict has gone forth that they shall all be destroyed. We are a new country here, and, as yet, free from pests, but, "an ounce of prevention, etc.," and if our growers are foresighted, they will take precautions at once. The cottonwood is about the only deciduous tree we have here, and adds much beauty to the landscape in places, but it should not be allowed to stand for a moment if there is any danger from its presence.

Keremos, the capital of the valley, is making a steady and healthy growth. Several new firms have started this summer, a church and school are under way, and timber is on the ground for a bridge across the Similkameen, to be built by the Provincial Government. It will be nearly 1,000 feet long, including a stretch across an island.

The Keremeos Land Co's irrigation works are so far advanced that water for their lands is ensured for this fall. They will cost over \$100,000. The main canal brings water down eight miles from the Ashnola River, and consists of six miles of open ditch and two miles of wooden pipe, from 30 to 40 inches in diameter.

[Alberta]

John Ryan

During my residence of 25 years in the Maelod district of Alberta, I have grown small fruits, such as currants, gooseberries and raspberries, with great success. I have some apple, plum and cherry trees that should bear next year. Two of my neighbors, Messrs. Thos. Clark and Jos. Hicks, have fruit trees bearing now. It is only recently that the planting of fruit trees has been thought of in this district.

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mental trees is doing well, and has induced many other persons to plant. Fruit can be grown in the MacLeod district, but the bushes and trees require some shelter from the winds. I would like to learn the experience of others in growing fruits through the columns of THE CANADIAN HORTICULTURIST.

Manitoba

D. W. Buchanan

This is rather an off year for some fruits. Plums did not set well owing to cold rain, and plum pocket has been bad, reducing the crop to 20 per cent. of last year. The apple crop will be 25 per cent. of last year. Strawberries are fair. Currants set a large crop, but the currant fruit worm has been very destructive, reducing the crop one-half in many cases.

Raspberries look promising and, with favorable weather, will give a good crop. Vegetables are yielding a fine crop on well-drained land, but there has been too much rain for low ground.

Winnipeg

George Batho

The prospects for the fruit crop in Manitoba are not above the average. Mr. Stevenson, the pioneer apple grower at Morden, reports only a small crop, this being a year of only light bloom. Plums have suffered a good deal from plum-pocket, and small fruits are, for the most part, bearing only moderately.

The beautiful weather of the early spring, followed by the heavy rains of June, which

prevailed throughout the entire stretch of the prairie provinces, have combined to make this a most favorable year for the planting and growth of forest and shade trees. This means a good deal to this country, as there are now being so many new windbreaks and plantations set out by farmers in our open prairie districts.

Arrangements are being carried forward for a Provincial Horticultural Exhibition, to be held in Winnipeg, under the joint auspices of the Western Horticultural Society and the Winnipeg Florists' Association. The dates have not been definitely set at time of writing, but it is quite likely that the show will occur during the first week of September. A committee of management has been appointed with F. W. Brodrick, professor in horticulture at the Manitoba Agricultural College, Winnipeg, at its head as secretary-treasurer and manager of the exhibition. This will be the first provincial horticultural exhibition in about six years, although as long ago as that a series of two or three good annual shows were held by the Western Horticultural Society. The trouble was that at the last show the financial basis was bad, and the weather proving unfavorable, a heavy deficit was experienced. A better financial arrangement now exists, and the chances are good for a first class show. For years the local horticultural society at Brandon has held a most creditable exhibition in that city.

The second annual convention of the Western Canada Irrigation Association will be held in Vernon, B. C. during the week beginning Monday, Aug. 10. For further information and program, write to the secretary, W. R. Megaw, Vernon.

Montreal

E. H. Wartman, Dominion Fruit Inspector

Fruit is selling well in Montreal. On June 27th, the first lot of ripe apples came to hand from Tennessee, red and green in color and of good size. The red variety in tenderness, like our astrachans, showed signs of decay; the green, more like our short stems, were in good order.

On July 6th, our Montreal auction room presented a very pretty scene; 15 cars of various kinds of fruits were on exhibition on the ground floor—bananas, melons, peaches, plums, apricots, lemons, oranges, pines and tomatoes—about 200 crates opened up so as to show ripeness, color and size. At 9:15 a. m., about 150 buyers assembled in the auction room to bid on six cars of California fruits, packed by Earl Fruit Co., Producer's Fruit Co., and Stewart Fruit Co. One characteristic of the sale was the strict attention of buyers and rapid bidding, auctioneer J. J. Callaghan quoting bids in French and English and passing from one kind to another in rapid succession. The whole six cars or over 6000 packages were knocked off in one hour and thirty minutes and invoices made out, aggregating \$8000. Mr. J. J. Callaghan as a fruit auctioneer is not excelled in America. The fifteen cars would aggregate about \$12000.

The district between Montreal and Ste. Anne-de-Bellevue, the extreme west end of Island, a distance of 20 miles bids fair for an average crop of fall and early winter apples, and common red sour cherries have been a good crop and retailed at 35 cents a gallon. The large setting of fruit trees on Macdonald Farm are doing well; the older ones are apparently full of fruit.

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New Brunswick

S. B. Hatheway

The Fruit Growers' Association held a series of orchard meetings at points along the St. John River during the last week in June, that were very successful and much appreciated. The speakers were G. H. Vroom, of Middleton, N. S., Dominion Fruit Inspector, and S. B. Hatheway, secretary of the association. A pump and

spraying outfit was used to demonstrate making and applying Bordeaux mixture. Instruction and practical work in pruning and care of fruit trees also was given. Evening meetings were held at Lakeville Corner and Oromocto, where insect pests and raising and marketing fruit, were discussed.

People are beginning to take an interest in the Fruit Growers' Association. If the Government could be induced to give an annual grant, as other local governments are doing, the advantages of having such an association would be more forcibly impressed on the public in general, and on fruit growers, in particular.

Nova Scotia

G. H. Vroom, Dominion Fruit Inspector

Fruit prospects in Nova Scotia at the present time are fair, although not quite what we expected when the trees were in bloom. The canker worm did considerable damage in some sections and shortened the crop. Gravensteins are well set and up-to-date are nearly free from spot, where properly sprayed. Kings are looking well. Baldwin, Golden Russet, Ribston, Stark, Ben Davis and Astrachan are fair. Fallawater, Spy, Blenheim, Greening and many others are light.

The continued dry weather shortened the strawberry crop and the price has been good. The retail price in Halifax during the third week of July was 15 cents a box. Cherries are a good crop; plums and pears only medium. The Halifax market is well supplied with plums, peaches, pears and apples from the south. The cranberry crop is promising well in most sections and on good bogs.

Western Annapolis Valley

R. J. Messenger

Since July 1, we have had no rain to speak of, and the result is a pretty considerable apple drop. The varieties dropping most are Greening, King, Ben Davis and the early varieties, such as Gravenstein. Many complain of a light set of Nonpareils. The general opinion is that the crop here is not as large in prospect as at last writing. The weather has certainly been favorable

for clean fruit and thus far, very little spot can be seen; still, August is the month for the development of the spot. However, we hope that with the more general spraying this year, Nova Scotia apples will be better than last year.

Whether or not we merited the reputation, last year Nova Scotia apples caught it from all sources. The Nova Scotia Fruit Growers' Association has more than once discussed the question of having the names of violators of the Fruit Marks Act published. Such an action would be beneficial. We are confident, however, that an improvement will be seen this year.

In the best cared for orchards, the cover crops are sown and cultural operations have ceased for the season. Small fruits are only raised on a small scale in this section, and very little commercially.

Eastern Annapolis Valley

Eunice Watts

Although the year opened with unusually bright prospects, the dry weather and the insect pests have put a damper on the expectations of many growers. The canker worm got beyond the control of several orchardists in the apple belt under the North Mountain, where the devastation caused by these caterpillars is a sight not easily to be forgotten. At Starr's Point, near Blomidon, whole blocks of orchards are defoliated, or as red as the soil on which they are planted.

In some districts, blackberries are badly affected by the orange rust which is prevalent not only in plantations, but by the way side where it should be the duty of passers-by to dig up and burn plants affected, thus preventing the spores of this incurable disease from affecting cultivated patches.

Potato beetles are particularly active, not only on their own hosts, but upon tomato plants and nicotianas. If by some mistake, tomatoes are grown on ground which was occupied the preceding year by potatoes, the beetles will quickly devour them, unless they are hand picked, for tomatoes are easily injured by Paris green.

The woolly bear caterpillars have appeared in great numbers on a patch of broad beans, (*Vicia Faba*) and are doing much damage. Last year they attacked the onions.

Peas are suffering more than most things for lack of rain and the apples are becoming thinner. Where the cultivator is kept constantly at work the crops are not suffering to any great extent; on the whole they look well.

Growers of strawberries who were fortunate enough not to lose much of their crop by the dry weather have made a good thing this season as there was a demand for them at a good price. Raspberries and blueberries quickly succeeded the strawberries, but like everything else they need rain.

During the past year, 62,844 barrels of apples have been shipped from Berwick Station. This does not include bulk shipments. Many other stations in the valley are not far behind Berwick in their shipments.

Sale of Square Pianos—Square pianos made by such well known manufacturers as Steinway, Chickering, Haines Bros., are being offered for sale at the low price of \$75 to \$150 by the old firm of Heintzman & Co., Limited, 115-117 King St. West, Toronto. These instruments have all been put in good condition and only from 50c to 75c a week is being asked in payment.

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The Winnipeg Industrial

George Batho

The horticultural features of the Winnipeg Industrial Exhibition have never been very strong, and the show held from July 11 to 17 of this year was no exception to the rule. Much the finest display of fruit came from Ontario and British Columbia. For some years the British Columbia people have made an excellent display of their products at the large fairs in the prairie provinces, and their fruit has naturally been coming more and more into favor in consequence. Last year the Ontario Department of Agriculture also made a display of Ontario fruits, and this year an even better exhibit was forwarded. Both of these displays showed all kinds of tree and small fruits, and the Ontario exhibit included a number of samples of honey. In both cases the exhibits were put up with a great deal of taste, and they were favorite corners with sight-seers from prairie sections where fruit growing is practically an unknown industry.

The Buchanan Nursery Co., of St. Charles, Man., had a most creditable display in the same building showing samples of perennial flowers grown in the open. A number of roses which have mostly been considered a tender line here, were shown, and of course such old favorites as peonies, irises, delphiniums, golden glow, bleeding heart, etc., were conspicuous, while a good showing was made in bottles of apples, crabapples, plums and small fruits grown on the nursery.

The professional florists did not enter into competition, but two of them, The Rosery and R. P. Ormiston, both of Winnipeg, made up beautiful large stalls of cut and potted plants. A similar booth was fitted up by the Public Parks Board of Winnipeg.

In the amateur class for flowers there were only a few entries, but these were mostly very good. One of the best things was a collection of 40 different varieties of sweet peas, in which Mrs. Lundgren, of Winnipeg, won first, and H. J. Edwards, Winnipeg, second. The pansy collection was small, but remarkable in excellence. Edwards won first and Mrs. Lundgren second. These two exhibitors also got most of the prizes in the other flower sections. C. N. Andrew won first on roses grown out of doors.

The Exhibition falls at quite an off season for fruits, and they made practically no showing at all.

Ontario Horticultural Exhibition

P. W. Hodgells, Secretary, Toronto

The Ontario Horticultural Exhibition will this year, be held in the St. Lawrence Market Arena, Toronto, Nov. 10-14. For three years this show has filled Massey Hall to overflowing and, after serious consideration at their last meeting, the directors decided to move to the larger buildings where all the fruits, flowers, vegetables, and honey could be shown on the one floor, and where ample space could be provided for the rapidly increasing numbers of exhibits in each section. The St. Lawrence Hall is conveniently located on the Belt and King St. car lines, and has already been used for various shows, including the Automobile and Horse Shows. It lends itself specially well to a show such as the commercial growers have been putting up the past four years. It is hoped also that rooms in the building may be filled up for the holding of the various convention meetings during the week.

The Eastern Passenger Association has granted more favorable railway rates

to the exhibition than last year. The single excursion tickets within a radius of eighty-three miles may now be bought from Nov. 10-14 good to return until the 17th, these to include a coupon admission ticket to the show for an additional 25 cents. Single fare tickets on the certificate plan may be bought from Nov. 6-16 and are good up to the 19th no matter how many may purchase tickets on the plan.

The prize lists for the various sections were submitted with some slight changes and the printed lists will be got out as soon as possible. A big effort will be made to advertise the show and the conventions as widely as possible both in Toronto and over the province generally.

Canadian Exhibitions in 1908

Halifax, Nova Scotia.....Sept. 2-10
Kentville, N.S.; Horticultural.....Oct. 7-9
London, Western Fair.....Sept. 11-19
New Westminster, B. C.....Sept. 29-Oct. 3
Ottawa, Central Canada....Sept. 18-26
St. Catharines, Niagara District.Sept. 17-18
St. John, New Brunswick.....Sept. 12-19
Toronto, Canadian National.Aug 29-Sept 14
Toronto, Ontario Horticultural..Nov. 10-14
Victoria, B. C.....Sept. 22-26

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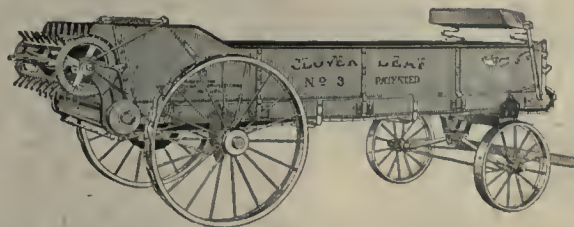
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Nico-Soap

Editor, THE CANADIAN HORTICULTURIST:

In the July issue of THE CANADIAN HORTICULTURIST, an article appeared over my signature entitled, "Some Spraying Mixtures," in which I inadvertently made the mistake of saying that "Nico-Soap professes to kill all insects and their eggs by contact." This was a mis-statement, as Nico-Soap claims only to kill insects by contact. The writer had been reading the advertising matter of Nico-Soap and another insecticide, and mentally "got things mixed."

The article was rather bitter in its tone, I admit, and was born of the feeling that the farmer is the one who gets "pulled" oftenest and is the least able to stand it; and in my zeal to aid my brother farmer, I am often unjust to others. I regret that the mistake was made and hope that those who are testing the merits of Nico-Soap may not be biased in their judgments, or in the reports of their experiments, by the error made in the article.—R. J. Messenger, Bridgetown, N. S.

Build a Metal Home

In every way metal is superior to wood or plaster for the interior of homes. Classified metal ceilings and walls, designed and manufactured by the Metal Shingle and Siding Co., Limited, of Preston, Ont., are to be preferred over all others for their beautiful and harmonious finish. They are made in a great variety of designs to suit all tastes and are classified according to the prevailing styles of architecture.

Metal ceilings and walls are fire proof and vermin-proof, are sanitary and easily cleaned. They may be beautifully decorated at small cost.

Those who are tired of the yearly expense of re-plastering, re-painting and re-papering, should make a change to metal ceilings and walls. They may be put on over the old plaster without dirt or muss, and in much less time than plastering would require. They last a lifetime and never need repairs, so that the first cost is the only cost.

Life insurance companies recognize the security which metal ceilings and walls afford, by making their rates one-third less on homes constructed of this material.

Illustrated catalogues and complete information as to cost may be obtained by writing the Metal Shingle and Siding Co., Limited, Preston, Ont. 57

Exceptional Bargains in Pianos—Square Pianos by such well known manufacturers as Steinway, Chickering, Haines Bros. and the famous Heintzman & Co. instrument, are being offered for sale by Heintzman & Co., Limited, 115-117 King St. West, Toronto, at such remarkably low prices as \$75 to \$150. These instruments have been put in good condition and all that is asked in payment is 50c to 75c a week.

Foreign Money in Our Orchards

P. J. Carey, Dominion Fruit Inspector, Toronto

The practice of foreign dealers recklessly advancing money early in the season to all classes of men, to operate in the orchards is responsible for a great many of the troubles of the apple business. This system encourages the wildest and most unbusinesslike transactions in the way of purchasing and handling of fruit. The business man who is using his own capital and wants to work on a business basis has little chance against such opposition.

We would have a much healthier trade if the orchard operations were in the hands of the growers or reputable dealers who have their own money invested. Then, when our fruit is properly and honestly packed, we are ready for the Englishman and his money and will be prepared to give him a square deal.

Items of Interest

Orchard meetings were held in June in Ontario at Wicklow, Colborne, Brighton, Wooler, Castleton and Warkworth. They were addressed by Mr. A. McNeill, Chief, Fruit Division, Ottawa and Dominion Fruit Inspectors Carey, Rutherford and Brown. The meetings were largely attended. The subjects discussed included orchard culture, spraying and orchard pests.

It is reported that the brown tail moth has entered New Brunswick. This summer, many specimens have been seen and it is known that they are coming from Massachusetts. The steamers plying between St. John and Boston have been closely watched and it has been learned that on every boat, scores and perhaps hundreds arrive and at once settle themselves in their new quarters.

Last month a number of orchard meetings in British Columbia were addressed by Prof. W. F. Thornber, Horticulturist of the Washington Agricultural College, Pullman, Mr. M. H. Dobie, Victoria, B. C., and other authorities. See report in next issue.

A neat little booklet entitled "A School Garden Illustrated" has been published by Hammond's Paint and Slug Shot Works, Fishkill-on-Hudson, New York. It contains much valuable information for gardeners. Send for a copy.

The exhibits of fruit from British Columbia at the Dominion Exhibition in Calgary last month were a credit to that province and received many favorable comments.

Fifty Dollars Buys a Piano—At the summer cottage, you have twice the fun if a piano forms part of the outfit. To help things along the old firm of Heintzman & Co., Limited, 115-117 King St. West, Toronto offer a number of square pianos, all in good condition, at from \$50 to \$75 each, payable in sums of from 50c to 75c a week.



Tire Steel Wheels do not cut into soft ground. Will carry as much as a team can draw. More durable, cheaper, than wooden wheels. Made to fit any axle. Free Catalogue gives details. Write for it.

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The only Steel Wheels with this advantage. If they meet with an accident, as is possible with any wheel, they can quickly be repaired by any blacksmith. Our low, Wide-



Apple Growing

(Continued from Page 162)

It is surprising how many farmers are yet unfamiliar with the Inspection and Sale Act, part IX (the Fruit Marks Act). A copy of this act will be sent to anyone on application to the Fruit Division, Department of Agriculture, Ottawa. Until the farmer becomes familiar with this Act he is at the mercy of the buyers. They may carry a copy of it around with them and may read a part of it to the apple grower, but the apple grower is likely to be deceived if he does not get the Act himself and study it carefully. All contracts, wherever grades are mentioned, should read "Grade No. 1 and Grade No. 2 as defined by the inspection and Sale Act, Part IX." With the Act in his hand, the apple grower can make no mistake with reference to the marks that are required on all fruit packages.

Briefly, the Inspection and Sale Act asks only that the fruit be packed honestly, of the same quality from top to bottom, and that it be marked honestly, Grade No. 1 or Grade No. 2 as defined by the Act. There are few complications about it, and there is no reason why any grower should be led astray by designing buyers.

CO-OPERATION

There are very few co-operative associations in this district. They are being strongly opposed by the buyers of the less reputable sort. These buyers are not interested in securing a fair price for the fruit for the farmers, but are interested in making as big a profit as they possibly can. The larger buyers and real fruit merchants are in favor of co-operative associations inasmuch as they enable them to get large quantities of fruit with greater assurances that the quality and marking are right. But many dealers of the "sharp" sort see in the co-operative associations only a number of apple growers removed from the chance of being imposed upon by their fairy tales with reference to crops, prices and market conditions.

APPLE BUYERS

Not a few apple buyers attended these meetings. Some of them expressed their approval of the Inspection and Sale Act and of co-operative selling. But the most of them found in the Inspection and Sale Act and in the co-operative associations a restriction upon their actions. The members of the co-operative association could not be imposed upon. The manager, probably a smarter man than the buyer, looked after the market end of the business for the grower. Some of these dealers were opposed to the Inspection and Sale Act because it interfered with their buying orchards by the "lump." With the spread of knowledge and the help of the co-operative associations, it is to be hoped that the apple industry will dispense with many of these disreputable apple buyers, and that the fruit may pass directly from the producer to the apple merchant who will forward it and distribute it, with as little expense as possible, to the customers at home and abroad.

(NOTE.—Mr. McNeill concluded with some excellent recommendations for the district mentioned, but lack of space forbade their publication in this issue. They will appear next month.—Editor).

Mr. Beckley, of the Horace McFarland Co., expects to spend considerable time this summer on the hybridizing establishment of Mr. H. H. Groff, Simcoe, Ont., the gladiolus specialist.

The Late Mr. John Cape

In the July issue of THE CANADIAN HORTICULTURIST, mention was made of the death



Mr. John Cape

of Mr. John Cape, a well known horticulturist of Hamilton, Ont. At the time it was impossible to secure a good photograph of the deceased for publication. Through Mr. J. Kneeshaw, the secretary of the Hamilton Horticultural Society, a good portrait has since been secured and it is published herewith. Besides the citizens of Hamilton, many non-residents will recognize it and be pleased to see a likeness of one who was a good friend of horticulture and an enthusiast in its science and practice.

For many years Mr. Cape was actively interested in the work of the Hamilton Horticultural Society, holding offices at various times and was its president at the time of his decease. As a director of the horticultural exhibition held in Hamilton in 1905, he was instrumental in a large measure, for its success. He contributed occasional articles for THE CANADIAN HORTICULTURIST which always were read with profit and pleasure. His love for things horticultural was a characteristic that made him beloved and a useful citizen. His passing away will be felt not only by his immediate friends but also by all persons acquainted with his writings and work in the interests of horticulture.

I feel that I cannot work my fruit farm successfully without the assistance derived from THE CANADIAN HORTICULTURIST.—A. J. Cody, London, Ont.

\$75.00 for a good Square Piano—A good square piano by such well known makers as Chickering, Steinway, Haines Bros. and the well known Heintzman & Co., instrument can be bought at from 50c to 75c a week. The price asked for any of these instruments is only from \$75 to \$150 and they are being sold by the old firm of

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Some Salts have lime and other impurities in them—which makes them coarse and gritty.

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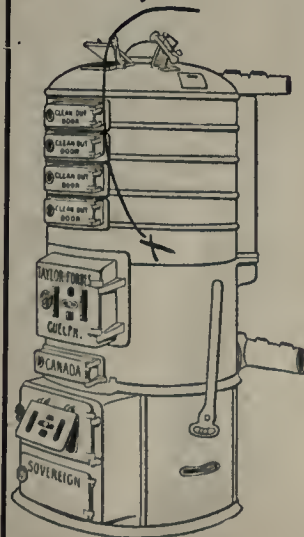
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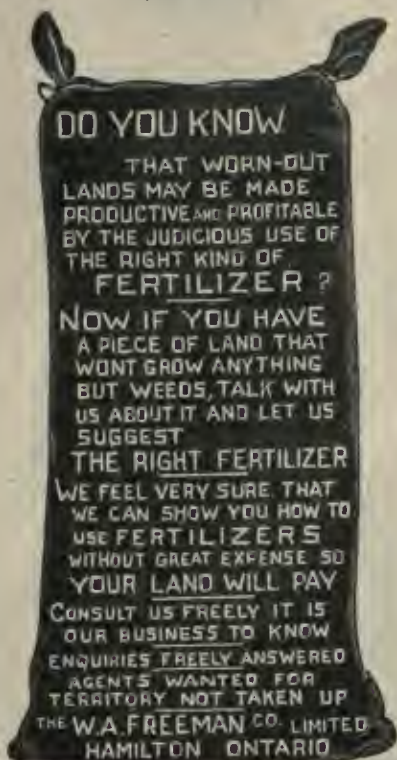
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POULTRY DEPT.

Conducted by S. Short, Ottawa

Summer Tragedies

In the July issue of THE CANADIAN HORTICULTURIST the beginning of this article appeared, giving only the bird enemies of the poultry yard and a description of their methods of procedure. A promise was made that in this number a list of the animals that prey upon the poultry would appear. While there are but two bird enemies of the chicken in this country, viz: the hawk and the crow, the animal depredators are more numerous. In the country and suburban districts there are wild enemies, such as the racoon, fox, skunk, mink and weasel, and

also what may be termed the domestic enemies, the dog and the rat. In cities only the domestic enemies have to be contended with.

The first on the list is the "coon," a wary chap. He works at night always, preferably between one and three in the morning. He rarely visits the same yard twice in succession, nor does he discriminate. Every poultry yard in his neighborhood is visited. He climbs the fence posts with ease and will enter any yard except those wired overhead. He likes to kill but seldom takes away his quarry. He kills by biting off the heads of very young chicks and by cutting the throats of mature fowl. He will upset a coop and kill all the chickens unless disturbed. His presence is known by the alarm shrieks of the mother hen or by the outcry of the male bird. It is wise to have the shot gun at hand when a coon is known to be in the district. Throw on a dark cloak and go out softly without a light and you may be in time to get a shot at him. When disturbed, he usually runs up the nearest tree and it is a good idea to examine carefully the trees, if there should be any in the yard before going in. Last summer a racoon visited eight or nine different yards in the vicinity of Rockliffe, Ottawa, and killed numbers of young fowl, escaping traps and dogs, until the writer had the honor of shooting him one night in the early part of August.

The fox is also wary and will not enter wired enclosures. He is dangerous only in the country districts and catches his prey early in the morning and towards evening when the fowl wanders too far from the yards. Scattered feathers at the edge of the bush or near a log fence tells the tale and soon the number of fowl rapidly diminishes unless the fox is shot or frightened off.

The skunk is a night prowler. He is very deliberate, being safe from attack from dogs. He first visits the nests in the hen house looking for eggs and then turns his attention to the chickens. If the place is to his liking, he will probably scratch a hole under the hen house or shed and stay right there. His meal time is about twelve o'clock midnight. He is not easily disturbed and can be easily shot for he goes on with his business of killing chickens whether the owner is there or not.

The mink and the weasel both work at night and in the same manner. They destroy from eight to a dozen chicks nightly by cutting their throats, but don't take away the bodies. The mink lives near a creek or beaver meadow, and must either be trapped or shot. The weasel likes a stone pile or trash heap, and may be seen sunning himself on sunny mornings on the bottom rail of the fence near his nest or den. It is worth while spending an hour to get a shot at him for he is hard to trap. Space forbids a description of the city enemies of poultry, the dog, cat and rat. It may be given another time.

In conclusion, it may be repeated that the animals that prey upon poultry are attracted by scent and the smell from a dirty yard will travel further than that from clean quarters.

Piano for the Summer Home—Life at the summer home is enhanced 100 per cent. if you have a piano. Easy enough to own one. Fifty or seventy-five dollars will buy one, payable in sums of from 50c to 75c a week. This at least is the way the old firm of Heintzman & Co., Limited, 115-117 King St. West, Toronto, are selling pianos this month.

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Visitor, the Lord
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College Re-opens September 16th

FOR SALE AND WANT ADVERTISEMENTS

Advertisements under this heading inserted at rate of two cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 25 cents, strictly cash in advance.

MR. CHARLES ERNEST WOOLVERTON, Grimsby, Ontario, landscape architect, parks, cemeteries, pleasure, school and home grounds laid out, surveys made. Working drawings to a scale so that any gardener can work them out. Terms very reasonable.

NURSERY, GREENHOUSES, and fruit farm for sale in Ontario. Large sales in nursery every year. Positively no San Jose Scale on the place. Several acres in apples, pears and plums, all bearing; also small fruits, strawberries especially. One and a half mile from depot. Owner wishes to retire. Splendid chance for the right man.—Box S., The Canadian Horticulturist.

WRITE AND ASK FOR our rural bulletin; it gives valuable information about rural telephones.—The Canadian Independent Telephone Co., 26 Duncan street, Toronto.

IRON PIPE FOR SALE—150,000 feet, all sizes from ½ inch up, in good condition, at half price. Write us what you need.—Imperial Waste and Metal Co., Pipe Merchants, 7 Queen street, Montreal, Que.

HOT WATER FURNACE.—Wilkes, 14 x 36, suitable for greenhouse or small house. Cost \$100, sell \$25.—W. E. Saunders, London, Ont.

GINSENG.—Seeds and plants for sale for fall planting. Big money maker. Write for circular.—J. E. Janelle, Caughnawaga, Que.

GARDENER, GOOD REFERENCES.—Life experience in all branches; English; age 40; seeks situation with gentleman. Could manage fruit farm.—Apply, Box W, The Canadian Horticulturist, Peterboro.

The Canadian Horticulturist

Vol. XXXI

SEPTEMBER, 1908

No. 9

The Picking, Packing and Marketing of Fruit*

P. J. Carey, Dominion Fruit Inspector, Toronto

ONE would think that after half a century had passed in practical experience along the line of picking, packing and marketing of fruit, that little remained to be said that would be of any great value to operators. Volumes have been written along educational lines, addresses by the thousands have been delivered bearing on the subject, millions of packages have been marketed and every conceivable method has been practised. There have been object lessons in every form. Experiment after experiment has been tried. Operators, some of whom have been in the business for upwards of thirty years, have had an opportunity of profiting from past experience. One would naturally think, therefore, that the subject "Picking, Packing and Marketing of Fruit" would be worn threadbare. But it would seem that there is much yet to be learned by the growers and handlers of fruit in order that their operations may prove successful. The question then we must ask ourselves is: "Wherein does the trouble lie?"—and if we are fortunate enough to trace it to its proper source, then apply the remedy.

Why is it that fruit handling has proven to be such a problem? Is it because there are insurmountable difficulties and conditions standing in the way of its successful carrying out, or is it because of the indifference and bad judgment of the operators? As I have no desire to be unfair in my criticism of those who are engaged in the trade, I am ready to admit that there are more conditions surrounding the fruit trade in all its branches than in all other trades along agricultural lines combined. While this is true, and while it calls for the closest possible care and attention, I am prepared to show that there is no trade in Canada in the handling of which can be shown the same indifference and bad judgment or a greater lack of good methods. I know that the difference between its being well and poorly handled is the difference between success and failure.

When is the proper time to pick? This is a debatable question. There is one

general rule, however, on which there can be no debate, and that is that every variety should be at least fairly well-matured and showing at least a fair share of color, character and finish, before being plucked from the tree. It is a well known fact that thousands of barrels of our apples are hurried off to the market at such a stage of immaturity that, if one were not guided by the name of the variety on the package, even an expert would be puzzled in some cases to name the variety.

WHEN TO PICK

It is the picking of our winter apples at the proper time in which there is so much involved. We had a striking object lesson last season. Thousands of barrels of our best fruit were damaged

Deserves Support

THE CANADIAN HORTICULTURIST is a credit to the publishers and deserves the support of every householder in the country. I sincerely hope that its circulation may be doubled each year until it may be found in the home of every respectable family in Canada.—Thos. Beall, Lindsay, Ont.

on the trees by frost. This frosted fruit went forward, some of it in a very bad condition. In my judgment this was partly, if not largely, the cause of the bad condition of the market. The frost came on the 20th of last October.

Now, the question is: Should our winter apples be picked before that date?" A learned judge, in giving judgment last season at Shannonville, in a case where frozen apples were in question, remarked that the Lord had sent the frost and we should not question what he had sent. Of course we all agree with him, but could we not agree with him and, at the same time, save our apples from frost?

HARVESTING WINTER APPLES

I am going to take strong ground here as to the proper time to pick our winter apples. The period for harvesting of our winter apples is, and has been, too long. I hold that this period should not extend over more than three weeks.

When the end of that three weeks should be, is a debatable question; but from past experience, it would seem that there is grave danger of damage from frost when fruit is left on trees later than the 20th of October.

The dealers will say with one voice that this is impossible. Of course it is under the present methods. When a single buyer will purchase 20,000, and often 30,000 barrels, a part of September, all of October, and often a part of November is consumed in picking winter apples off the trees. There is something radically wrong with this system. Each year there are thousands of barrels picked immaturity on the one hand, and on the other hand, there are thousands of barrels left to wind and frost to be gathered up and marketed in some way.

There is but one way to carry out what I contend—namely; that the picking period should not extend longer than three weeks—and that is that the growers must pick their own apples. I care not how they sell their fruit or whether they pack for sale or not. It is impossible to harvest our fruit properly and in season any other way; all other ways have been tried and found wanting.

PACKING

Packing the fruit is, perhaps, the most responsible part of the whole proposition. What constitutes a good packer? Ten years ago a good packer was a man that could take two-thirds of a barrel of poor apples and one-third good, and turn out a barrel of choice XXX Canadian apples. A good packer to-day is a man who, if he finds there are no No. 1 apples, in the orchard, will put them up as No. 2. (all that are fit for that grade), and do his work well and as rapid as possible.

It is in the packing after all that the whole trouble is centred. No matter how good the intention of those who direct the work and have their money invested, they are forced to employ all classes of men, in respect to some of whom, to say that they are careless and unscrupulous, would be using mild expressions. Those who employ the latter class are certainly "in the hands of the Philistines."

One of the common faults of packers is that, when they enter an orchard or

* Adapted from addresses delivered at Fruit Institute last winter.

packing house, they feel in duty bound to put up a percentage of No. 1, whether there is any fruit of that grade in sight or not. Thus, it is in this particular to which the greater trouble can be traced. I do not wish to be too severe in my criticism of the packers, but it is surprising, to say the least, to see the indifference and carelessness displayed by the ordinary packer in his work. Until such time as some system can be devised to induce those, who are actually engaged in the work of selecting and packing, to take a greater interest, the trade operations can be called little better than a game of chance.

We have two classes of packers: There are those that are simply employed to do the work, and those who are small dealers and superintend their own work. I scarcely know how to designate the latter class. Some of them come forward with a pious and God-fearing sort of an expression and declare that they are unable to sleep at night, through a fear that some of their packers might depart from the path of righteousness. One of the latter class told me that he always made it a practice to put better apples in the middle of the barrel than on the face. This, of course, pleased me and I asked him for his photograph to add to my little collection of curiosities. Another seemed to justify his actions by saying that the first man the world ever saw, showed a little weakness along the apple line, and all down through the centuries that weakness seemed to stick to the apple-man.

THE WORKMANSHIP OF PACKING

In Ontario, we have an army of, perhaps, the best barrel packers in the world, but unfortunately when the busy season comes, men who know little or nothing about the business must necessarily be employed. It is to this class of packers that most of the trouble can be traced, as to poor workmanship.

I wish to call attention specially to what is called "over-pressing." When a packer asks my opinion as to whether a certain package is over-pressed, and while I can plainly see that it is, I feel that I dare not tell him so. It is a well-known fact that barrels showing signs of slackness, will sell from two to four shillings less than "tights."

OVER-PRESSING AND SLACKS

There is a prejudice against "slacks," but the slackness produced by waste fruit is what is in the mind of the dealer and he has no time to discriminate between such a "slack" and what is known as an "easy pack"; therefore, when a package shows signs of slackness, it must fall. This is unfortunate, as the "easy pack" is worth shillings more to the fancy trade than the over-pressed package,

where almost every fruit is disfigured by press marks; but having the dollars and cents to the dealers in my mind, I must say to him, have your packages arrive tight if possible. I am not referring here to the hundreds of packages in which the fruit is needlessly crushed and broken, producing the worst kind of "slacks," especially in warm weather packing. These are the kind of "slacks" that are in the minds of the dealers. When tapping the barrel in the head, it has a hollow sound.

MARKETING

In regard to marketing, we have not yet arrived at a perfect plan. The nearest to the ideal is the plan of selling f.o.b. cars at points of shipment. We



A Well-faced Barrel of Ontario Apples

have recommended this from every platform for the last few years, and the idea has been received with such favor that some half a million barrels were sold in this way last season. But what happened? I have discovered that with the ordinary dealer, as soon as he is fully conscious of the fact that his fruit is sold and the price fixed, the same old human weakness creeps in and he does not display the same care in selecting the fruit or in workmanship as he would if the prices depended on the manner that the fruit is put on the market. This, however, does not apply to all the "packs" sold in that way and can be remedied by inspectors paying special attention to "packs" when sales are made in this way.

CO-OPERATIVE MARKETING

I will not discuss the co-operative plan of marketing at any length at present, but it is a matter of regret that in many instances, the growers cannot stand the temptation and abandon the co-operative plan, when speculative buyers offer them apparently big prices.

Under no method has the return been as satisfactory to growers, nor has the reputation of the trade been as well safe-guarded, as under the co-operative plan. Some 200,000 barrels were pack-

ed under this plan last season and the bulk was sold f.o.b. cars, points of shipment. With a few exceptions, the pack turned out satisfactory. Under no other method, can the same uniformity and control of pack be maintained.

With the knowledge of these facts in possession of the growers, it is surprising that they are so easily turned aside and reach a market through some other channel. There is no denying the fact that an effort is being made by the speculative dealers to give this movement a death-blow. The proof of this was shown last season by the very high prices paid here and there in sections where co-operation was in full swing, and this in sections where a few years ago apples remained on the trees for the want of buyers, and where the co-operative movement was started as a remedy.

IRRESPONSIBLE BUYERS

There is another method of marketing which has worked much mischief and that is, where irresponsible buyers swarm the country early in the season and secure thousands of barrels of apples without any means to finance the deals. They then wait for their victim, who very soon turns up. A handsome profit is handed over to buyer No. 1 for his deals, and in the deal he and his relations get fat wages for doing the packing. Buyer No. 2 finds at the close of the season that there is a great shortage in the numbers of barrels represented, that the work has been fraudulently done and that the prospects that seemed so rosy in the early season were only a dream. Of course, it is every man's privilege to engage in any business he wishes to, so long as he does not violate the laws of the land. We have a right to criticise the methods employed, however, and to suggest improvements.

Growers fared well last season, but they must not forget that if the season's operations did not show a profit to the dealers, that they will have to make it good sooner or later. There is a common saying that, "The place to look for a thing is where you lose it." The fruit trade of Canada has assumed enormous proportions. It is up to the growers to look well to their interests and do everything in their power to place the trade on a sound basis.

Feeble growing and unhealthy trees are, as a rule, the results of starvation, poor attention or unfavorable climate.

THE CANADIAN HORTICULTURIST would like to hear oftener from readers who grow raspberries, blackberries, currants, or gooseberries. Send for publication a description of your patch, and tell how you plant, cultivate, prune, pick and market.

The Marketing of Peaches

A. F. Stevenson, Niagara Falls South, Ontario

AS WE look over our orchards, the questions arise in our mind: "What is the most satisfactory way towards the disposal of our crops?" and "Can we improve upon our methods followed last season?" A number of us will say: "Yes," experience having taught us.

It is a most unfortunate thing for all concerned in the fruit growing business that a closer observation is not made by individual growers respecting the grading and packing of our fruit, particularly noticeable in peach shipments. As far as possible oversee this important branch of the business yourself. No man will look after your interests in the same way.

We should see that the contents of each package is of uniform size—not fine and attractive fruit on top and miserable marbles underneath. Have fruit not too ripe nor too hard. Strike a happy medium. This can be done by making two or three pickings at intervals of a few days. Have fruit in such layers that it comes even with top of basket so that, when it reaches its destination, instead of being bruised and discolored, it will have as sound and fresh an appearance as the express companies will allow.

We have three chances to choose from for the disposal of our fruit—the commission men, retail stores and canning factories. It is a good thing that we have these openings for the distribution of our fruit. If we were confined, say, to shipping to commission men, what would the result be? We would be at their mercy more than ever. As it is in many cases, the consumer pays high prices and the producer does not get barely clearing expenses. Certainly his price is not in proportion to what the consumer pays. We would be only too willing to pay more than the regular 10 per cent. if we were sure of receiving what our produce actually sold for.

There is not sufficient rivalry between commission men. There is too much of a "combine spirit." They are grinding the producer on the one hand and the consumer on the other. Is it any wonder that the growers are looking for a more direct channel for the disposition of their fruit?

The key note to successful marketing is the closer relationship between the producer and the consumer. It would be much better for all concerned and much more profitable for both sides. It insures the buyer a better article at less cost and likewise the producer, if he

and villages. Heretofore, Toronto, and Montreal were the chief distributing centres, our fruit going to these cities, then re-shipped broadcast over the land, this necessitating considerable expense which comes out of both consumer and producer.

The canning factories give the growers a good opportunity for the disposal of large quantities of fruit. A great many of us, who have not the gambling spirit, think a "bird in the hand worth two in the bush," and, consequently, dispose of our entire orchards in this way, knowing that we have no commission and express charges to be deducted from our bills of sale. Our baskets are returned, and there is no packing or grading which is a great saving of money and time.

Canadian Grapes

W. T. Macoun, Ottawa

There have been a few grapes originated, some of which are sold by nurserymen and some are not to be found on any trade list. Those which may be mentioned here are the Brant, Canada, Moyer, Kensington, Burnet, Jessica and Northern Light.

Brant and Canada were originated by the late Charles Arnold, Paris, Ont., and are crosses between Clinton and one of the *vinifera* varieties. Both of these grapes are small, and are acid and sprightly, with a pleasant flavor. Their value lies in their earliness and ability to ripen in the north, even in cool seasons. Moyer, while an unproductive variety, is also valuable for home gardens, as it is a sure ripener where most grapes do not mature.

One of the best grapes of Canadian origin is the Kensington, a white grape, originated by Dr. Wm. Saunders, director of the Dominion Experimental Farms. It is a little too late in ripening to be useful at Ottawa, but farther south it should be very desirable. It was originated by Dr. Wm. Saunders, at London, Ont., by crossing Clinton female with Buckland's Sweetwater male. The vine is a strong grower, and moderately productive; bunch, large, long, compact, shouldered; fruit, medium size, oval, pale green, translucent, firm, thin skin, sweet, sprightly, pulp melting, quality, good; season, late.

For the benefit of readers of THE CANADIAN HORTICULTURIST in British Columbia, the October issue will be devoted largely to the fruit interests of that province. Tell your friends about it, and ask them to subscribe this month.



Ontario Peaches Packed for Shipment to the West

Note the different styles of packing. Box at right contains a 5-5 pack and box in centre, a 4-5 pack.

It is a regrettable fact that transportation companies handle our produce as if it were baggage. How often word comes back: "Fruit arrived in poor condition." We are the losers but the companies get their charges just the same.

is shipping to a reputable retailer, receives a more satisfactory price than if his shipments went through a middleman.

A great number of growers are now shipping direct to retail stores in towns

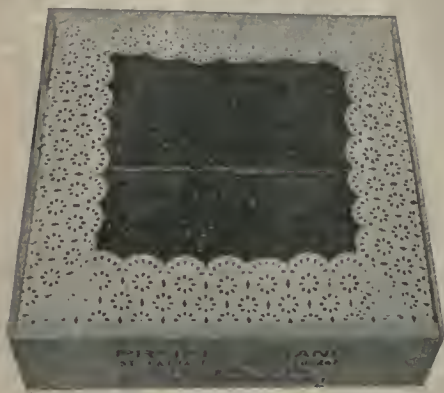
Harvesting and Marketing Grapes

G. H. Carpenter, Fruitland, Ontario

CARE and intelligence must be exercised in the handling and marketing of grapes. The fruit will not ripen off the vines. It must be picked when mature; consequently, the picking must be carefully done in order that the fruit will reach the consumer in good condition.

PACKAGES AND PACKING

For commercial purposes, the fruit is picked in nine-quart baskets. Where a high-class trade is being supplied, small-



High Quality Grapes Well Packed

er and fancier packages are used. In this latter instance, the finest should be re-packed in a packing house in order to ensure a high-class article. In any case, if a superior and attractive looking package is desired, the fruit should be re-packed, care being taken in the final packing to pick off all green and broken berries. This requires a little more work than where the fruit is handled only once, but it is work well expended.

CO-OPERATIVE MARKETING

There are various ways of disposing of the crop after it is harvested. Local fruit associations are important factors in this regard. When a number of growers co-operate to sell their fruit, a more uniform product is put up, a better market usually is secured and more remunerative prices are obtained, than though growers were to work individually and possibly cut one another as is frequently done.

SELLING TO CANNERIES

The canning factory, too, presents a good market for this fruit. When a factory is being supplied, the fruit is picked in large baskets and shipped in them or in barrels. No second handling is required. The expense for harvesting thereby is considerably lessened and the general price ruling for wine grapes admits of as large a net profit almost as is realized on the fruit when sold for direct consumption. The factory also offers a place for the disposal of all over-

ripe fruit, which otherwise would be wasted.

SELLING TO LOCAL BUYERS

The local buyer offers another means of disposing of the fruit. This method is frequently much less satisfactory than the others. It suggests the great need for grading this class of fruit. Where the fruit is bought indiscriminately, the price frequently is knocked down because of the presence in a consignment of the inferior product of some careless grower. The producer of the superior article, in this case, is the loser. He does not get full value for his product and for the extra labor he has expended in putting it up in an attractive form.

THE SKILL OF MARKETING

The successful growing of fruit and the profitable marketing of that fruit are entirely different problems. A man may be a successful grower yet, owing to a lack of business ability, placing the fruit on a poor market may result in a financial failure. The great point is to put the fruit up in an attractive package. Good fruit well packed in a smart and tasty package will sell itself anywhere, and bring a good price. In fact, the package will sell it. Then, study the markets and get the product in when good prices are ruling.

Manures for Orchards

Alex. Muir, Niagara-on-the-Lake, Ont.

My experience has been that worn out soil can be brought back to a good state of fertility by the application of good long or green manure, plowed under, thus putting life and humus into the soil. But there is a great difference in the qualities of manures. The common barnyard manure puts humus into the soil, but there is not the body nor substance in it that there is in manure from well grain-fed stock and littered with straw to absorb all urine and liquid matters. The best manure that I have ever used is S. W. Marchmont's Complete Compost. I have always got the best results from it both for grain and fruit farming.

My experience and belief as to the proper use for barnyard manure is to put it on the land as it is made and not allow it to remain in the barnyard to fire-fang, evaporate and have all the essence leak out and run into some creek or ravine. Marchmont's Sure Growth Compost is composed of all kinds of manures, which I have seen handled and mixed in such a way that the manure is kept from heating or fire-fanging, while at the same time the ammonia in the manure is re-

tained, which makes it one of the most valuable of plant foods.

Worn out land, after filled with humus and brought up to a good state of fertility, is very easily kept in that state by top dressing with from four to five tons per acre of good rotted manure, such as Marchmont's, which I have found gives first class crops. A good take of clover also is beneficial to any kind of soil. My experience is that the old saying, "If ever you get into debt, go for manure," is a true one.

Land bearing heavy crops year after year must be fed well with good manure. For a number of years I have top-dressed my grain fields, orchards and small fruits. I usually do this in the winter time when there is not so much of other work to be done and at a much smaller cost than in the spring. I have always had the best of results.

With regards to commercial fertilizers, I have bought every brand of commercial fertilizer that was ever offered to me for sale, for my private experimental purposes, but have had poor results without a generous application of the ordinary raw manure.

I have had fairly good results from wood ashes and muriate of potash. Sandy soil is lacking in potash; therefore, I use a little of muriate of potash in conjunction with good compost manure which makes good stiff straw, and more bushels, also a good quality of fruit and lots of it. Moreover, I am convinced and my experience goes to prove that I am correct, that the application of good manure is not only very beneficial to the land, but very profitable to the producer.

Picking Plums

The exact time for picking plums can be determined only by experience. It will depend on the distance from the market and on the shipping qualities of the variety. Plums will bear picking when quite green, particularly the Japanese varieties. When intended for a near-by market, they may be left on the tree as long as possible.

Most of the Japanese varieties and some others ripen very nicely after picking. They can be kept for three or four weeks in a fairly cool, dark place, and come out in good condition. Sometimes they can be kept much longer. As some of the American varieties are apt to break their skins when ripe, care should be taken to pick them on the green side.

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The Dahlia and its Care in Fall

Col. H. P. Van Wagner, Hamilton

IT is nearly a hundred years since the first double-flowered dahlias were produced, and, after many ups-and-downs, the dahlia has recently had a

a mixture of four parts of bone meal and one part of nitrate of soda. Dry sheep manure (sold by seed men) lightly raked in the soil is a convenient form of fertilizer. It is generally advisable to commence to feed the plant as soon as it comes into flower. Too rich a soil results in large plants and few flowers, therefore it is advisable to apply the fertilizer when needed.

WHEN TO PICK

September is the month for dahlias. It is then in perfection, as it delights in a cool, humid atmosphere. It will not do well in a hot, dry summer. In a very hot season, I have found dahlias to do better in a partially shaded situation. The best flowers are on young plants, and if large, perfect blossoms are desired, pick off the side buds. Dahlia blooms should, if possible, always be cut before sunrise or after sunset, and immediately put in a pail of water and put in a cellar or other cool place, and left there for six hours before being shipped or otherwise disposed of. By changing the water every

spray with Paris green. If planted near a meadow, grasshoppers often destroy the blooms.

FALL TREATMENT OF TUBERS

The dahlia root should not be lifted until a week after the frost has killed the plant. This gives the tubers time to ripen, and they ripen much better after the tops have been killed than before, and the tubers are not so liable to shrivel up during the winter. Cut the stalks off within six inches of the tubers, remove all the soil possible, allow them to dry, then place in a cellar or other place secure from frost. Place in barrels or boxes and cover with dry, clean sand. Some growers use tanbark or sawdust, but I have never used anything but sand. Some growers lift the roots early in the morning of a bright day, place the roots upwards without removing the soil from the roots, let them dry in the sun for half a day, then remove to cellar, and place in a box or on a shelf. I have found this to work well on light soils, but on heavy soils the tubers are likely to decay. If the roots are left uncovered in a dry cellar, they will shrivel and lose their vitality. If covered with damp sand or soil, they will decay. Many say that any treatment which will keep the potato during the winter, will keep the dahlia equally well. This has not been my ex-



An Amateur Gardener

At residence of Mr. T. H. Taylor, Hamilton

renewed popularity. This is largely due to the introduction of improved varieties of the cactus-flowering sorts, which are more graceful for cutting than the older varieties. The improved single-flowered sorts, especially the "century" family, are also very fine for cutting, while, in the decorative class the new peony-flowered dahlias, with their bold, artistic flowers, of elegant form and beautiful colors, supply an entirely new form in this class. Now, each year gives many new varieties of dahlias of such wonderful form and color that hundreds who never cultivated the old-fashioned dahlias are now growing the newer types. As the dahlia is of the easiest culture, and its varieties of every conceivable color, their culture cannot fail to give satisfaction to the lover of flowers.

It is now too late to write of the soil and cultivation best adapted to the dahlia, further than to remark that the deep cultivation which was beneficial at the early stages of the dahlia's growth, should cease as soon as the plant comes into bloom. After that the surface of the soil should be kept well cultivated to the depth of an inch or two, to conserve the moisture. The frequent stirring of the soil will give better results than watering, but where dahlias are planted near trees or shrubs which take the moisture from the soil, it is well in dry weather to water them.

FERTILIZING

Sometimes the flowers of dahlias, which have come into bloom early, gradually become smaller and smaller. This generally results from a lack of plant food in the soil. This may be prevented by broadcasting around the plant a small quantity of some good fertilizer, such as

morning, clipping the stems a little, and setting the base or bowl in a pan of cold water in a cool place at night, the flowers can be made to last a week.

There are few insects affecting the dahlia. The chinch bug sometimes eats off the buds. The best remedy is to

perience, although tubers of early planted roots, well ripened, will often keep well uncovered in a cellar.

Photographs of horticultural interest are always welcome for publication in THE CANADIAN HORTICULTURIST.



Dahlias Growing in Front of a Verandah

Residence of Mr. H. R. Nixon, St. George, Ont.

Transplanting Herbaceous Plants in the Fall

J. McPherson Ross, Toronto

TO have herbaceous plants in the best possible flowering condition, it is necessary to transplant them frequently; that is every three or four years. Being rank growers and strong feeders, they soon exhaust the soil unless they get an annual top dressing of rich manure, which should be thoroughly forked in in the spring. This operation permits the checking of strong growers, such as rudbeckias and other kinds that multiply by rhizomes and layers. It is easy to dig them under which practice keeps your plants within bounds when you do not sell them or give them away. When borders become congested with growths of this kind, it is a good plan to make an entire new border, and plant the varieties in clumps of each kind, massing them, as it were, which makes a much finer effect.

All herbaceous plants are the better for such dividing, with the exception of pæonias, which are better if left undisturbed for many years, so long as you keep them manured. Phloxes have to be divided and replanted every three years, if you wish to have fine flowers. Any variety may be divided and replanted after its flowering season is over. September is a good time to do this work. Gardeners find this a busy month. There is so much to do with transplanting perennials that have been grown from seed, also biennials such as hollyhocks, foxgloves, pansies, daisies, and so forth.

To have the best possible success with perennials, the bed or border in which they are to grow must be thoroughly drained, and even with good drainage, it is well to make the bed good and high above the surrounding ground, so as to insure good surface drainage. The best results are obtained by subsoiling the bed; that is, to dig in a good coating of manure, and to dig the bed as well two spades deep. This may mean a little extra labor, but by so doing you provide deep loose soil for the roots to go down in, which means larger and richer growth of foliage and flower, besides enabling the plants to withstand dry spells when and where it might not be convenient to water.

When your bed or border is ready for planting, cut off this season's tops. Dig up the plants and divide them into three or more plants as you desire, or if anxious to have as many as possible you can divide them into smaller sizes. Dig the hole plenty large enough. Place in your plants, fill in the soil and tramp firmly. Finish by watering liberally and leveling the surface soil evenly and neatly.

Any of the following plants may thus be treated during the month: Phloxes,

summer and autumn flowering; pæonias, if you desire to propagate; *Diletea spectabilis*; achillea, in variety, campanulas, delphiniums, aconitum, rudbeckias, heleniums, heliopsis, lily of the valley, pyrethrum, potentiallas, tradescantias, lilies, pulmonias, physostegias, boltonias, lych-nis, armerias, iris, spireas, hemerocallis, *Papaver orientalis*, and veronicas. In short, nearly all our hardy garden favorites, bear transplanting well at this season.

As this season's observations of the habits of each plant, their height, space required, and so forth, are fresh in the grower's memory, you can better arrange the massing and order of the plants in your bed, than by putting it off to the following spring. You can also arrange your beds for bulbs at the same time and plan floral effects for other seasons better when you have specimens in full growth before your eyes.

When planting, the stereotyped advice is to put the tallest growing at the back, the medium in the centre, and low growing in the front, or to serve as edging. Anyway, avoid straight lines. Vary the arrangement as much as you please but keep the various sorts in masses or clumps, allowing for contrasts and a continuity of bloom.

The majority of perennials bloom in the spring. This being so, it is well to have clumps of phloxes at different parts of your border so as to give abundance of bloom, as it were, all over your beds. A useful and showy flower for this purpose is the tiger lily. This in strong

the too promiscuous use of the rudbeckia almost make this plant tiresome, if not kept well to the back. It should be but sparingly planted as it is apt to overshadow and over-balance your other flowers. For late summer blooming we cannot recommend the phloxes too much. Good vigorous plants of this useful flower make the garden radiant. The physostegias and bocconias are valuable for their late summer blooming habit, likewise the heleniums.

The great interest taken in herbaceous plants of late, shows that the public are beginning to appreciate them, not only for their beautiful flowers and foliage, and hardness, but for their practical and economic value and permanence. They are always on hand to do with as you wish. You can purchase them as cheaply as geraniums but, unlike bedding plants that only get to their best when they are destroyed by frost, the perennials are always on hand to grow again with but little care. They reward the grower by their permanence. You may admire the bedding plants, but it is always with a certain sympathy and regret for their certain doom, but the hardy delphinium and phlox yields to the flower lover a certain satisfaction in their possession not given by the geranium, aster or coleus. Newly planted herbaceous beds should be well mulched with strawy manure as a winter protection.

Roses in Saskatchewan

G. T. Barley, Prince Albert

In preparing for a group of roses and shrubs, I planted the bed in the open ground. For the summer, I left it open;

or the winter I built a frame around it, about three feet high, and banked with soil and manure, and used some stove heat. The top was covered with boards and sawdust on one side, and a row of glass on the other, with an extra covering of cotton frames for nights, and very cold weather.

By digging a path three feet deep, and a door in one end, the plants could be easily seen at any time. I kept the frost out until the first of the year, and then, for two months, allowed a little frost in, in order to en-

sure that everything was dormant. This is only one evidence of what may be done along horticultural lines in Saskatchewan. Many others might be cited. I shall contribute another article soon.



Growing Roses in Saskatchewan

In February with thermometer outside registering at times thirty to fifty degrees below zero.

clumps at effective points of garden, lights up the whole place. Judicious grouping of gladiolus with a few masses of *Hydrangea paniculata*, makes a showy sight of color. The vigorous habit, and

The Fall Care of Lawns

R. L. Canning, Earls court, Ontario

THE time is now approaching when those who have the care of lawns and grass plots in their charge, must consider what is to be done to make them perfect for another season. As the summer is drawing to a close we must examine the grass, and make ourselves acquainted with its conditions and faults.

In the first place, be careful about weeds. Have all noxious and gross-growing weeds eradicated. Hand weeding will be best, by going on one's knees with a knife and cutting them out by the root. When this is done fill the holes with fine earth, and drop a pinch of seed on top, and make firm with your foot or a spade. When this work is completed, roll it well, and make it solid.

TREATMENT OF SMALL PLOTS

To those who have limited space, and less soil at their command, care should be taken to save every little refuse that will turn into mould or manure. The grass which you cut from your lawns during the summer, and placed in a corner, will help. The edgings and the sweepings and the leaves from the shade trees will help also. The domestic soot gathered from the stove flues makes a fine top dressing, and the wood ashes made during the summer months will, when blended together, make a fine compost for the small lawn. This should be applied in the spring, after the frost has left the ground, and should be put on in as fine a condition as possible, spreading it evenly, and raking off any large or stony substance. Be sure and fill any small holes previously overlooked. Should the lawn be generally uneven, it will be wise to have the turf lifted, and the ground underneath levelled. Make smooth before placing the turf back again. When once a lawn is relaid, whether in the fall or in the spring, be sure and roll well.

For my part, I would re-lay all my grass in the fall, say, the end of September, or the beginning of October. By doing it in the fall, nature assists us, as we have the rain in abundance to help the new-laid grass to make sufficient roots to support itself during the coming winter.

TOP DRESSING IN SPRING

Where the grass is in good condition, a simple top dressing of manure will be of great advantage in the spring, in assisting the grass to take in fresh food when assisted by the rain, the salts and ammonia being worked in to the roots, leaving the solid matter on the surface to be raked and swept off.

When contemplating making an en-

tirely new lawn, care and consideration must be given to the project in hand. Not merely sowing of grass seed, and laying new turf, is sufficient. The land should be prepared in the fall. The

lightly, and then any bare patches can be seeded. These should be made good at once. Scratch with a sharp-pointed rake and sow thickly with grass seed, and sprinkle with some fine soil. Roll



Victoria Park, Kincardine, Ontario, under care of Local Horticultural Society

drainage must be in good order. If it is naturally drained so that no surface water remains on top after a storm, all well and good; but, if it is wet and soggy, put a course of drain pipes in so as to ensure a good drainage, and a dry bottom. It will be more trouble, but it will pay in the long run. A good, green sward will be the reward of your labors.

VALUE OF FALL PREPARATION

By preparing the land in the fall, it will have time to settle, and in the spring any little indentations can be made good and levelled. The surface ground will then be in a fine, friable condition to be worked at will and ease, and will be fit for the laying of the turf, or for the sowing of the seed.

LAYING SOD

The former way is the quickest and the best, as the "turf" is there at once. When the sod is laid, keep the hose-pipe going judiciously, not too much, but sufficient to keep the grass moist. The roller must be used often and well to ensure levelness and solidity. Lay the sod as early as possible, consistent with the weather.

When the turf has taken root, mow

in a day or so. Be careful when mowing to have the knives raised high for the first fortnight, so as not to pull up the new grass, or destroy that which was sown.

Winter Protection for Roses

C. Craig, Ottawa

The best method of winter protection for roses is a question which has been much discussed by rose growers. From my experience, the most satisfactory way is to lay each plant down and tie it to a stake driven in the ground, afterwards covering with leaves or rough litter to the depth of six to nine inches. In this way, I have never failed to bring through all the varieties I shall mention in this paper.

Great care must be taken in the spring as to the right time to uncover and prune the bushes. If the sap is allowed to run freely before uncovering, there is danger of the bark shrivelling and drying up. The plants must be kept as dormant as possible until all danger of severe frost is past, which should be from the middle of April to the first of May in this locality.

A House-front Improved in One Year

Mrs. A. G. H. White, Toronto

THE improvement of the house-front shown in the illustration, was rather difficult to work out. The floor of the veranda was about five feet above the street level. The latticed foundation looked bare and common—not at all in keeping with the quaint little house. The sun shone but little in the spot, and few plants would grow in such deep shade.

The first step was procuring from the city four loads of earth, not sweepings. This was banked on each side of the steps to a width of about four feet. Then a load of rough stones of all sizes and shapes, was procured at a cost of four and one-half dollars. These were laid along the edge of the earth as unevenly as possible; that is, all the jagged edges and points were placed to show to the best advantage. Inside of the stones a line of Alpine cress, which blooms so profusely in early spring, was planted.

The next step was a long one—to the woods. The worker returned laden with

spoil in shape of red-berried elder, black-berried elder, purple-flowering raspberry, and wild clematis. These were



One Year from Planting

planted along the veranda and cost only car-fare, and a lot of fun. An addition of a Japanese clematis and a couple of bridal wreath spiraea, was made, and the worker called on nature for the rest.

When this spring the shrubs were tipped with dainty green, and the white masses of bloom of the cress fell over the rough stones, the worker was more than repaid for the little amount of time, labor, and money expended. All through the summer the cool freshness of the shrubs has been a delight. As the vines grow, the effect will be even prettier.

The mass of foliage adding weight to the base of the veranda has lowered, in appearance, its height. Being open and close to the street, where mongrel dogs abound, expensive plants would be but a source of grief to the owner. Although planted only a year, the plants chosen are producing an admirable effect, and one that will be even more beautiful in after seasons.

Fall Treatment of Bulbs Indoors

Thos. Bog, Picton, Ontario

THERE are four requisites for the successful culture of all kinds of bulbs in pots, but more particularly for hyacinths: 1st, Quality of the bulbs; 2nd, soil; 3rd, potting; 4th, treatment.

To have good results in pot culture, the quality of the bulbs should be good. Purchase from a reliable dealer. Cheap mixtures or immatured roots will not give satisfactory blooms. The soil should be a rich loam, not stiff.

If the pots are new they should be well soaked in water before using. Put a small piece of broken pot over the hole

to prevent the roots growing out. Fill up with soil about three-quarters full. On the top of this put a little sand, then set the bulb, and fill up with soil to the top of the pot. Do not press bulb. The soil must not be too wet when potting, otherwise the bulb may rot before the roots begin to grow.

STORE FOR ABOUT TEN WEEKS

After potting, store in a dark, cool place for about ten weeks before bringing to the light, say until the flower stalk shows signs of shooting. Examine the pots occasionally during the time

that they are in the dark. If dry, water slightly. Great care should be taken in keeping the soil moist, but not too damp. If the pots are brought out too soon, the flower stalk is apt to be short and the blooms low down. After bringing the pots to the light, set them in the sun and water freely.

The same treatment will answer for narcissi, but they do not require to be so long in the storage. Tulips do not prove very satisfactory for winter blooming unless you have a sunny, cool place for maturing the blossoms.

Fall Treatment of Bulbs Outdoors

J. T. Rose, Brantford, Ontario

TO be successful with the cultivation of bulbs in bed outside, we must first decide on the location of the bed. It should be facing any point from the south-east to the south-west, so that we will be sure of sunlight to make good, strong, healthy stalks, and also deep, rich color of bloom. In the second place we must have rich soil. I am a heavy feeder of either horse or cow manure. I prefer the latter, as it is free from weed seeds and will not burn the plants.

After taking up the bulbs in the spring I cover the ground with all the manure

that I can dig in, leaving it to rot for ten days, when I apply another coat of manure, and also dig it in. My ground is then ready for geraniums and other plants to bloom through the summer. After the first frost that kills these, I clear off the ground. I then loosen the earth for the bulbs. As my space is limited to a bed around a bay window, and the side of the house, which faces the south, I put the bulbs in very close. Different kinds are in the same bed, and they do not trouble each other.

I first put in a row of tulips or hya-

cintus about six inches from the wall, and about the same distance apart in the rows, and from four to six inches deep in the ground. In the space between these bulbs, I put crocus, which bloom quite early, and are much admired, before the tulips and hyacinths are in bloom. I do not cover the bed with manure until the ground has been frozen quite hard, for that treatment helps the bulbs.

Now, I must tell you what I do with the bulbs after they get through blooming. I dig them up very carefully, so

as not to break the stalks from the bulbs. I then make a shallow trench in the vegetable garden in which I place them, keeping each color separate. I cover them a little deeper than before

taking up. When the leaves become parched and dried, the bulbs are taken up, and placed in paper bags or boxes. Be sure and mark each color so that you will have no trouble in arranging

the colors in the beds when planting in the fall. This short article is written in the hope that it may help some one who is a beginner in the cultivation of bulbs in beds outdoors.

Lawn and Garden Hints for September

THERE is plenty of work for gardeners in September. The early garden of next spring must be started now. Prepare for winter now. Send for and read the bulb catalogues. If you want bulbs, either indoors or outdoors, read the articles that appear on page 188 of this issue. Start your indoor bulbs now, and have bloom for New Years.

If you have a conservatory, repair the benches and heating apparatus and put them in good condition before the end of the month. Pot Bermuda lilies and a few freesias. Sow seeds of calceolaria and cineraria. Seeds of stocks for winter bloom may be sown. Princess Alice is a good variety. Sow some sweet peas in the greenhouse. They will bloom all winter. The best varieties are Christmas, pink, and Miss Florence Denzer, white.

FLOWERS OUTDOORS

Commence harvesting the gladiolus corms, taking the young stock first. Place them in pots and allow to dry for a day or two. Then carry them to the cellar, and put in a box or paper bags on a dry shelf.

House plants that have been outdoors all summer should be taken in when the temperature of the house is about the same as that outside. Do not leave them out too long.

Many perennials may be planted in the fall. Read the article on another page.

Save some flower seeds from your own garden. Dry them slowly for a few days and then store in a cool, dry place.

Dig the bulbs of tigridias before frosts. Dry and store in dry sand in a warm room or cellar where the temperature is not lower than 50 degrees.

Caladiums in the border should be dug as soon as frosts turn their foliage. After drying, pack them in dry sand in boxes, and store in a temperature of 45 or 50 degrees.

If you intend making a new lawn next spring, prepare the ground now. Plow or dig deeply and evenly, and drain, if necessary.

THE KITCHEN GARDEN

When frost comes, or just before, gather all the remaining fruits from the tomato and squash vines, and store them where it is dry.

Bleach the celery with boards or with

earth. Mulch the rhubarb bed with rotted manure.

Sow winter varieties of radish early in the month. Harvest before severe frosts and store in sand in a cool cellar. A sowing or two of summer radishes may yet be made.

In sheltered locations, spinach for cutting next spring may be sown now. Protect in winter with frames.

Plant a few Egyptian tree onions.

Have you a strawberry patch? If so, how did you plant it, and what are your methods of growing. Tell your experience to the readers of THE CANADIAN HORTICULTURIST. Send a photograph of the plantation, if you have one.

Largest Fuchsia in Ontario

J. B. Young, Trenton, Ont.

The fuchsia shown in the illustration, on the next page, is about thirty-three



Flower Show Held in July by St. Catharines Horticultural Society.

They will be ready in spring before other onions can be had.

If you want salsify early next season, sow the seed now. It will start this fall. Protect through the winter.

WITH THE FRUITS

Bud peach trees that have not done well. Choose a variety that is usually successful in your district.

Prune currant and gooseberry bushes. New plants may be set now. Take cuttings for planting next spring. Tie them in bundles and store in deep sand in the cellar.

If you think that you will not have time for the work next spring, remove the old canes from the raspberry and blackberry patch. It is safer not to clip the tops of the new canes until spring.

If your trees are infested with fall web-worms, either cut out the branches to which the web is fastened and burn or destroy the nest while on the tree by holding a lighted torch beneath it.

years old, and was grown from a slip in my own house. In shape, it is round, with a drooping top, giving the appearance of a miniature elm tree covered with fuchsia bloom. It is about seven feet high, and the limbs spread about the same distance in every direction without artificial support. The stem at some distance from the soil is over two inches in diameter. This fuchsia is thought to be the largest in Ontario and, perhaps, in Canada, growing on a single, self-supporting stalk.

For the first few years it was treated as an ordinary house plant, then the top was cut down to the root, except one strong shoot, which was left to form the stalk. This was supported and allowed to grow to the desired height. No lower growth was permitted. All sprouts or buds were rubbed off from the lower part. It has been re-tubbed every three or four years and each time some ordinary, but rich soil was added.

For many years, it has been self-sup-

porting. The stalk and principal limbs have now become so strong that they support the smaller branches in a most graceful manner. In consequence of the size of my conservatory, the main limbs have not been permitted to increase in length for several years. Every December the small branches have been pruned back severely.

For over twenty years this plant has stood in the conservatory, taking its chances with other kinds. It has never been put away to rest. About the first of December, it suddenly stops growing and blooming and until the first of February no amount of stimulating will induce it to send out a new leaf or flower. Most of the old foliage remains on the plant until replaced by new. Every flower wants to go to seed, and if they were permitted to do so, the plant, within a short time, would look like a small tree filled with red cherries.

As this plant increases in age, it increases in vigor and acts as though it were just commencing life in earnest. I do not know to what age fuchsias will live, but have been told that there is one near London, England, that is said to be about a century old.

Note—If any readers of THE CANADIAN HORTICULTURIST know of a fuchsia that is larger and older than the one here il-



The Largest Fuchsia in Ontario

Photograph was taken about three years ago and when the plant had about finished blooming for the season.

lustrated, will they kindly send information regarding same and a photograph for publication.—Editor.

If you like this issue of—THE CANADIAN HORTICULTURIST, show it to a friend, and secure a subscription for us. Thus you will help to make the next issue even better.

The Culture of Ginseng

J. E. Janelle, Caughnawaga, Quebec

THE soil for ginseng must be rich, cool, sandy, well-drained, and the surroundings shady. Ginseng thrives best where oak, hickory, beech, maple and basswood used to thrive, but

ly come up in May and June. When the young plants have grown two summers they are transplanted to other beds, and planted eight inches apart each way. The plant begins to bear fruit when



Lattice Shade over a Ginseng Garden

Establishment of J. E. Janelle, Caughnawaga, Que.

will not grow in low, wet, marshy soil, nor will it stand an overflow during its growing period. However, any soil can easily and cheaply be made suitable for growing ginseng. Any soil that grows fruit trees or vegetables, especially the common carrot, will produce ginseng equally as well.

If "woods dirt," or leaf mould, is not handy to use as fertilizers, the rich soil around the base of an old straw-stack, or well-rotted horse manure, with a little wood ashes mixed with it, will be a good substitute. If the soil is already very rich, it needs no, or very little fertilizers. No green manure or any other kinds of fertilizers than those mentioned above, should be used on beds of a ginseng garden.

Ginseng must be grown in shade. The natural shade of trees will regulate itself. The artificial shade made with boards, laths or brush must be erected when the leaves of trees begin to grow in the spring, and must be removed in the fall, about October first. The idea is to imitate nature in forests, where ginseng grows in its wild state. In all cases shade must exclude about three-fourths or four-fifths of the sun's rays.

Ginseng seeds germinate eighteen months after they are gathered. They are planted in beds, either as soon as harvested or twelve months after, in rows three inches apart, with the seeds two inches apart in the rows. Seeds usual-

two or three years old and gives ten to seventy seeds, according to the quality of the soil, and the age of the plant. The berries turn red about the first of September, and a few days later begin to fall off; it is then time to gather them. When the seeds are not planted as soon as harvested growers keep them alive by the process of stratification, in order to preserve their germinating powers. They must not be allowed to dry out, or they will not grow. Such seeds are called "stratified seeds," and may be planted at any time until eighteen months old. When planted at twelve months, that is in September or October, they come up the next spring.

On the other hand, plants or roots are transplanted only in the fall, when the stem dies, and the root is dormant, that is, after the 15th of September, until the ground is frozen hard. The operation can also be done early in the spring, but the season is very short, and risks are great for a beginner to do it in the spring.

Cultivated roots are generally dug at seven years old, that is, five years after the plants were transplanted to regular beds. They then average ten or twelve dry roots to a pound, and their commercial value is from \$6 to \$8 a pound, according to size and quality. An acre of ginseng, if well managed, and with reasonable success, will produce at least 6,000 pounds of dry ginseng roots in seven years.

Commercial Fertilizers for the Market Garden

Frank T. Shutt, M.A., Chemist, Dominion Experimental Farms

MUCH has been said and printed regarding special brands of fertilizers for special crops. We cannot, as a rule, recommend them, for they are seldom prepared from a scientific basis in the first place, and it is very doubtful, in the second place, if our present knowledge of crop requirements is sufficient to justify us in saying that any particular ratio or proportion of the fertilizer element for any particular crop, is the best. However, it is true that there is a dominant fertilizer for each class of crops, and the system that adopts this view is a good one, if not followed too closely or too severely. Thus the cereals respond to fertilizers in which soluble nitrogen predominates; turnips require phosphoric acid more particularly; clover and the legumes need potash specially. Perhaps, soluble nitrogen, as in nitrate of soda, is the most important element in the growing of leafy crops. By noticing the particular "liking" or peculiarities as it were of a crop, it is true that we can frequently economize in the matter of fertilizers, but in the first place it would be well to consider what might be termed a "basis fertilizer," serviceable for many crops.

Prof. Voorhees, of New Jersey, an authority on fertilizers, suggests as a basic fertilizer, for market garden purposes, one having the following percentage composition: Nitrogen, four per cent.; phosphoric acid, eight per cent.; potash, ten per cent. On the light soils in the eastern and southern states from 1,000 to 1,500 pounds may be applied, and this further supplemented later in the season by additional dressing of nitrate of soda. Though we seek to have an excess of plant food present, it would be wiser for us, with our better soils, to experiment at first with smaller amounts. For loams that have been constantly enriched by heavy applications of manure, probably 500 pounds an acre will give as large a yield as 1,000 pounds. Again, if our soil is, as just described, it might be more profitable to reduce the amount of nitrogen in the fertilizer. Nitrogen is a costly element and, moreover, can always be given to the crop just as the crop can utilize it. It is better, therefore, in the majority of cases, to reserve the greater part of the nitrogen for application in one or more top dressings after the crop is up, and actively growing.

Let us see what amount of plant food would be furnished by such an application of 1,000 pounds an acre of the basic fertilizer mentioned. They are as follows: Nitrogen, 40 pounds; phosphoric

acid, 80 pounds; potash, 100 pounds. My impression is that with land in good condition, and to which stable manure in moderate quantities, is annually added, that from one-half to three-fourths of the above amounts will be sufficient, to be supplemented, if necessary by subsequent top dressings of nitrate of soda of 50 to 100 pounds each at intervals of two or three weeks in the early part of the season.

Selecting the ingredients from among those we have spoken of, we have the following: Nitrate of soda, 100 pounds; bone meal, 200 pounds; superphosphate, 200 pounds; sulphate of potash, 100 pounds. This mixture would contain four per cent. nitrogen, ten per cent. of phosphoric acid, (five per cent. of which is available), and eight per cent. of potash, and could be used at the rate of 600 to 800 pounds an acre, broadcasted and harrowed in or drilled into the prepared land before seeding in the spring. After the crop is up a few inches, if the color is a pale green, or there is a general lack of vigor, give a top dressing of fifty to seventy-five pounds of nitrate of soda, to be repeated, if necessary, some three weeks later. The addition of sand or dry earth to the fertilizer will facilitate the distribution of small dressings.

Slight variations on the foregoing may be given as follows: Nitrate of soda, 50 pounds; dried blood, 100 pounds; bone meal, 200 pounds; superphosphate, 300 pounds; muriate or sulphate of potash, 200 pounds. This mixture should contain 3.5 per cent. of nitrogen, 8 per cent. of phosphoric acid, and 11.5 per cent. of potash. Applied at the rate of 850

pounds an acre, we should be furnishing approximately: Nitrogen, 28 pounds; phosphoric acid, 85 pounds; and potash, 100 pounds.

The following formulæ, from Voorhees, have been used with good effect for general garden crops: Ground bone, one part; superphosphate, one part, muriate or sulphate of potash, one part; applied at the rate of 500 to 800 pounds an acre. Top dress the growing crop with 100 pounds of nitrate of soda an acre. Such a mixture (including the nitrate subsequently applied) contains 5 per cent. of nitrogen; 9.5 per cent. of phosphoric acid, and 12.5 per cent. of potash; and 500 pounds of the mixture (including 100 pounds of nitrate) would furnish 20 to 25 pounds of nitrogen, 38 to 45 pounds of phosphoric acid, (one-third of which is immediately available) and 60 pounds of potash.

If a larger percentage of soluble phosphoric acid is required, the following formulæ will be better than the preceding: Ground bone, $1\frac{1}{2}$ parts; superphosphate, $1\frac{1}{2}$ parts; muriate or sulphate of potash, 1 part; applied at the rate of 500 to 800 pounds an acre. Top dress with nitrate of soda as already indicated.

This mixture (including 100 pounds of nitrate) would have the following composition: Nitrogen, four and a half per cent.; phosphoric acid, eleven per cent.; potash, ten per cent.—500 pounds (including the nitrate) would furnish: nitrogen, 22 pounds; phosphoric acid, 58 pounds, (nearly two-thirds available); and potash 50 pounds.

I would impress on growers that excess of phosphoric acid and potash, will not be lost; such excess will remain for



Growing Celery for the Toronto Market

Note boards on centre row placed for bleaching. Farm of Geo. Syme & Son, Carleton West, Ont.

another season's growth. It is wise, therefore, to use these minerals, as they are called, liberally, so that if the crop's growth is arrested at any time by drought or excessive wet, the plant may find an abundant supply of food and make increased growth when favorable conditions are again established. With

nitrate of soda and sulphate of ammonia the case is somewhat different. The most economical plan with regard to nitrate is to apply little and often when the crop is growing. In this way there will be no loss by leaching, and the plant will be supplied.

I cannot, in closing, do better than re-

commend market gardeners to read Voorhees' book on fertilizers, (McMillan & Co.); it will give a great deal of useful information. And I would further say that I shall always be pleased to help the market gardeners of Canada at any time with advice in the compounding and use of fertilizers.

Growing Cauliflowers for Market

George Syme, Jr., Carleton West, Ontario

WHEN the cauliflowers begin to form, they should be well watered and tied by going through every day. They should be tied loosely with a string about two-thirds of the way up. Do not tie until the flower be-

packed in boxes. Cover carefully to protect from the air.

The most profitable cauliflowers to grow are the intermediate ones, coming in between the early and late varieties. They are the most difficult to secure,

altogether, leaving the plants to become hardened.

When setting in the field, plant in rows thirty inches apart, and from eighteen to thirty inches in the rows. When the plants are in, do not cultivate too much at first as it is better to leave the soil a little stiff as the insects cannot work to such good advantage. At the end of June or the beginning of July, when the plants become well rooted, get the cultivator to work. Cultivate deeply and often until your land is rolling before the cultivator like a bed of ashes. When a plant dies or becomes destroyed by insects or "buttoning-up," keep planting. In this way you will have a crop coming in, one after the other all season, besides always having your ground occupied.

The soil should be prepared in the fall, being well manured with good barnyard manure. This land should be well ridged so that no surface water stays on it during the winter or early spring. An application of lime and salt put on after plowing and harrowing, helps materially.

Bleaching Celery

T. Benstead, Strathroy, Ont.

For bleaching early celery, I use boards one foot wide and sixteen feet long. I wire through from one side to the other. If the boards are put up straightly, they will not warp. As I calculate about four dozen and a half of celery to each sixteen feet, I know just how many boards to remove when I intend to ship.

For bleaching with muck, which constitutes my celery soil, I start about September 20. I throw up some muck with a Planet Junior cultivator, and finish the operation by using a bush scraper, with a man on each side of the row. It takes three weeks to bleach with muck. If the muck is not allowed to dry on the stalks, it will wash off easily. This must be done as soon as the celery is taken up.

Vegetable gardeners are requested to contribute articles for publication. Tell your experience in growing crops for market, and send some photographs.



A Field of Cauliflower Ready for Tying

Two plants in foreground marked with crosses have been tied. Farm of Geo. Syme & Son, Carleton West, Ont

comes visible. Tying too early or too tightly will destroy the flower. The leaves should be pulled together just enough to shield the flower; if too tight they become blanched at the top and, with the first shower runs in and destroys the flowers. Do not allow the flower to get too large or too old as it is much better to have a small, solid flower than a large, open one. In this way much better results will be had as the flowers will hold up much longer after being cut. When cutting cauliflowers, they should be pulled carefully in rows and hauled to a shed before trimming, where they should be trimmed, sorted, and

and being planted at a time when insect pests are most troublesome, it is almost impossible to grow them on ordinary cauliflower soil. The best varieties are Early Snow Ball and Early Erfurt. The soil best adapted to this crop is a damp clay loam, rather inclined to be stiff. The plants should be sown in a cold frame about the first of April. Sow rather thinly. Leave the frames on until the seedlings begin to show through the soil, then air them by lifting the frame alternately at each end with a chip to stop damping-off, which is very prevalent at that season of the year. When the plants are a fair size remove the frames

QUESTION AND ANSWER DEPARTMENT

Predicting Frost

I have been told that frosts can be predicted by the use of an instrument called the psychrometer. Is this so, and how is it done?—E. A. F., Sudbury Co., N. B.

An instrument known as the sling psychrometer or the wet- and dry-bulb thermometer is used for this purpose. As the name indicates, there are two thermometers, one of which has a dry bulb, and the other is kept wet. A comparison of the two readings is made and, with the aid of a tabulated table, the dew point is determined. The difference in the readings of the two thermometers will show the decrease of cold produced by evaporation. Evaporation will be more rapid in dry air, and hence the cold caused by evaporation will be greater. By thus determining the dew point, we may predict the approach of frost. "When the dew point is low, frost may be expected. The tabulated table that is necessary is too long for publication. It can be found, with further information on this subject, in "The Horticulturist's Rule Book," by Bailey, which will be supplied through this office on receipt of the price, seventy-five cents, or in THE CANADIAN HORTICULTURIST for 1905, page 333.

How to use Pyrethrum

Can insect powder, or pyrethrum, be used in liquid form?—H. H. T., St. John's Co., Que.

Pyrethrum may be diluted in warm water (one ounce to a gallon) when the dry powder is not desirable or practicable. It is usually applied in the dry form, for small insects and larvae; diluted with flour two or three times its own bulk, for plant lice, particularly in greenhouses; or sprinkled upon hot coals, for fumigation.

Rhus Cotinus—Yucca

Kindly give some information about *Rhus Cotinus atropurpurea*,—class of shrub, height, hardness, and color of fringe. Tell something about *Yucca elegantissima*. Is the flower double? Does the flower stand erect or droop? Is the leaf broad and sword-like, with appendages like hair drooping from the leaves? Have I the right name for this particular yucca? Is it hardy, or should it be covered in winter?—C. E. V., Lincoln Co., Ont.

Rhus Cotinus atropurpurea is a very dark purple variety of the shrub usually known as purple fringe or smoke tree. This variety much resembles the common purple fringe, except that the feathery plumes are much darker in color. It

varies in height from ten to twelve feet, depending upon the character of the soil and age of the shrub, and should be perfectly hardy at Grimsby.

There are eight or nine species of yucca, but none of them bear the name, "Elegantissima." From your description of it, I think you must mean *Yucca filamentosa*, one of the most commonly grown in this country. This bears single white flowers which droop. The leaves are sword-shaped, and about an inch in width, with numerous filaments or thread-like appendages from the margin of the leaves. This species is usually quite hardy in certain parts of the province and stands the winter about Grimsby without protection.—Prof. H. L. Hutt, O. A. C., Guelph.

Moles—Damping off Fungus

What do ground moles feed upon? Give cause and remedies for the disease that causes young plants to wilt and die.—C. L. K., Essex Co., Ont.

Moles are said to feed upon the roots of grass, trees and garden crops, but it is probable that much, if not all, of the injury that is attributed to them is really due to mice. Moles are almost exclusively insectivorous in feeding habits and burrow through the ground in pursuit of insects. While beneficial on account of these habits they may cause considerable damage when they burrow extensively in lawns, or about the roots of some garden plants. They may be exterminated by capturing them in their burrows in the evening with a shovel and spade, by the use of traps, or by carbon bisulphide injected into their burrows. Carbon bisulphide may be poured into the holes and the holes immediately closed, or it may be injected into the soil by means of a syringe.

It is presumed that the disease referred to is what is known as the damping-off fungus (*Pythium de baryanum*.) It is a disease of seedlings which is characterized by the falling over and dying of the plantlets, due to the destruction of the tissue of the stem just above the ground. The disease occurs most frequently where the ground is very wet and the light dull. The fungus may be held in check by locating the seed beds where the drainage is good, and where a fair amount of sunshine and ventilation may be allowed. See that the seedlings are not crowded. Where the seed beds are not so located, and the disease appears, it is difficult to treat. Hot sand sifted

over the plants will check it, but there is no complete remedy. As soon as the disease appears, give more air, and prick out the plants.

Planting Asparagus

I sowed some asparagus seed last spring. Can the young plants be transplanted this fall, and how should it be done?—C. R., Antigonish Co., N. S.

It should make but little difference whether asparagus is planted in spring or fall, provided the roots are in proper condition and have been allowed to complete their season's growth. If planted in fall, it should be done late in September or the first of October. As the plants will be less than one year old, it probably would be advisable to plant them closer than usual in the rows so as to insure the chances of a better and surer stand. The customary distance is three or four feet apart. Set the plants four or five inches deep. If the crowns are much less than four inches below the surface they may be injured if the ground is harrowed or hoed before the plants sprout in spring.

Poison Ivy

I have a patch of poison ivy, about 20 feet square, in a wood lot. How can I get rid of it?—B. C., York Co., Ont.

About the only way to get rid of poison ivy in a woodlot is to grub, or dig it out, protecting the hands with leather mits or gloves. In a patch that is only twenty feet square, it should not be a difficult job. You might try spraying with sulphate of iron—two pounds to one gallon of water, or even one pound to a gallon, might answer.

Harvesting Cauliflower

J. N. Watts, Portsmouth, Ont.

When the young flowers begin to show themselves they must be covered up by using the outside leaves or by tying until they have attained the size for market.

Should the crop not be all sold before the weather becomes too cold to make any more cauliflower, they may be pulled and stood on a cellar or roothouse floor, until as late as January, when good money can be realized for them.

Never handle tomatoes when they are wet with rain or dew.

Do not let the boys kill the toads. They kill thousands of insects during the summer.

The Canadian Horticulturist

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CIRCULATION STATEMENT

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Circulation Statement

January, 1907.....	4,947	January, 1908.....	7,650
February, 1907.....	5,520	February, 1908.....	7,824
March, 1907.....	6,380	March, 1908.....	8,056
April, 1907.....	6,460	April, 1908.....	8,250
May, 1907.....	6,620	May, 1908.....	8,573
June, 1907.....	6,780	June, 1908.....	8,840
July, 1907.....	6,920	July, 1908.....	9,015
August, 1907.....	6,880	August, 1908.....	9,070
September, 1907.....	7,080		
October, 1907.....	7,210		
November, 1907.....	7,257		
December, 1907.....	7,500		

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We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words "I saw your ad. in The Canadian Horticulturist." Complaints should be sent to us as soon as possible after reason for dissatisfaction has been found.

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EDITORIAL

BE FAIR WHEN PICKING GRAPES

Our market for grapes is almost ruined every year by careless and dishonest growers, who persist in picking the fruit before it is ripe. Some fruits, like the pear, are better picked before fully ripe, but the grape has not this characteristic, as no maturing development goes on after the fruit is harvested.

In scores of our vineyards, grapes are picked too green. Sometimes Champions are picked before they even turn red, and are placed in baskets under green lino to deceive the eye. Tons of Niagaras are harvested before they are fit to eat. Some growers err so much in this respect that all their grapes are off the vines and sold, before honest growers have commenced to harvest. They are after the few additional dollars that grapes command at the beginning of the season—but it is penny wisdom and pound foolishness. By placing such stuff on the market early in the season, the confidence of the buyer and of the consumer is sacrificed. One taste of green, hard Champions, or any other variety picked before maturity, will cause the unfortunate partaker to shun grapes for the balance of that year.

Grape growers, who respect themselves, and their business, will do well to harvest their fruit when it is ready to harvest, and not before. By this means only, can the grape market be made satisfactory throughout the season.

PROFIT IN GARDENING

The value of home and civic improvement has been emphasized many times in the columns of THE CANADIAN HORTICULTURIST, but it is a question so important to the welfare of our country that it deserves every good word that can be said in its favor. There is nothing that is so pleasing to ourselves and to wanderers in our country from other lands as the effect produced by sensible gardening about our private and public places.

The exercise of landscape art in our country, towns and cities determines, to a great extent, the class of people that will be tempted to settle in these communities. The communities will be better off when their population is increased by newcomers who are artistic in temperament and who appreciate the beautiful. Persons of this nature prefer to live in a community of improved homes. To secure that privilege, they will pay a higher price for such property than they would for homes in an ordinary, common-place locality.

That rural or civic improvement increases the value of property is a self-evident fact. Every day farms and town lots are being bought and sold. The prices paid for them depend not only upon their value as property, but also upon their value as homes. In many cases, the appearance of the building and its surroundings closes the deal.

Some persons may deem this kind of improvement an extravagance. Such, however, is not the case. When they consider the probability of a remunerative reward for their efforts, they will see the fallacy of the contention. What is the price of a small plot of ground devoted to this purpose, the price of a few trees and shrubs and a little grass and flower seed, compared with the improved appearance, the pleasure and pride afforded the owner or occupant and the increase in the value of the property?

Every Canadian citizen who is fortunate enough to be so situated as to have the opportunity, should be a personal factor in making all Canada a place "of beauty and a joy forever."

STORING LOW GRADE APPLES

Last season's experience showed dealers that the shipping of "No. 3" grade apples or "culls" with the hope of making a profit is little short of madness. There were stored in Colborne, Brighton and Trenton last year for the purpose of re-packing, 100,000 barrels of absolute trash. It has been shown that if this large amount had been given to the dealers free of cost they would even then have lost money by handling it. And this was not the only effect. The placing of this large quantity of disreputable stuff on the market had the tendency of reducing the price of the "No. 2" grade perhaps half a dollar a barrel.

There are two ways in which the grower can meet the "cull" proposition. First, reduce the proportion of "culls" in his apple crop by taking proper care of his orchard; and secondly, take those that he may have to the evaporator, the canning factory, or the cider mill, where they belong.

That one or more fruit inspectors should be appointed for the Niagara peninsula has been pointed out in these columns more than once. Recent reports from leading growers in that district state that each season the need becomes more acute. Such an appointment would benefit both the grower and the buyer. It would insure more uniform and honest packing, the use of a correct package and it would enable the buyer to purchase fruit almost on a guarantee basis. The grower then would get more money. This matter should receive the consideration of the Dominion Government at once so that an inspector may be appointed at an early date.

That the Fruit Marks Act is a valuable and important asset to fruit growers, is evidenced by the attempts at copying it or at observing similar regulations that are being made by the apple growers of the United States. One of the latest reports from across the line states that a co-operative association has been formed in Maine and that all of its members must pack and grade their fruit according to the requirements of the Canadian Fruit Marks Act.

Fruit growers who get together and organize co-operative fruit growers' associations assume a responsibility that is not always recognized. They have in their hands the reputation of Canadian fruit in a greater degree than the individual grower or shipper. The foreign markets look to our co-operative associations for the highest quality of fruit, packed correctly and honestly. The associations are the models for others to imitate. It behooves them, therefore, always to maintain and even to advance the standard that they have established. They should be imbued not only with the purpose of gain but also with the spirit of patriotism.

A Foreign Visitor

Mr. B. W. Heikel, State Pomologist, Finland, recently visited THE CANADIAN HORTICULTURIST, at its Toronto office. Mr. Heikel is visiting Canada and the United States on behalf of the Finland Government.

He will visit the various agricultural colleges and experimental farms throughout Canada and will look into fruit conditions in British Columbia. From there he will visit the western states and will return across the continent to New York. From New York he will go to Nova Scotia. There he will make a study of the growing of cranberries. Mr. Heikel informed us that in Finland there are considerable areas that the government believes might be utilized advantageously for the growing of cranberries.

Mr. Heikel expects to spend six months in America. He informed us that he subscribed for THE CANADIAN HORTICULTURIST when he could not read a word of English. He studied the paper for a year and stated that it helped him to master the English language. He thinks so much of the paper that he gives his copies around to friends in Finland who are interested in horticulture and who can read English. A representative of THE CANADIAN HORTICULTURIST visited a number of the leading horticultural establishments around Toronto in company with Mr. Heikel.

Iced Cars for Fruit

Editor, THE CANADIAN HORTICULTURIST.—I am authorized to announce that arrangements have again been made with the railway companies to supply iced cars for the carriage of fruit in carloads, intended for export via Montreal or Quebec.

Cars will be supplied on request of shippers to railway agents, and the Department of Agriculture will pay icing charges to the extent of \$5 a car. This arrangement will be effective from August 3rd to October 3rd. —J. A. Ruddick, Commissioner of Dairying and Cold Storage, Ottawa.

Niagara Exhibition

The Niagara District Horticultural Exhibition will be held on Thursday and Friday, Sept. 17th and 18th, at the Armouries, St. Catharines. The prize list which has been prepared shows that there is no decrease in the enterprise and courage of those who manage this important event. The awards offered total about \$1400, an advance over last year. There is every reason to believe that the coming exhibition will surpass in extent and quality the exhibitions of 1906 and 1907, both of which were eminently successful from the broad horticultural standpoint.

Readers of THE CANADIAN HORTICULTURIST who are interested in learning how a live horticultural society can do things—how a society from small beginnings has grown to be one of the largest in the province, carrying on a business which last year equalled nearly one-sixth of the total expenditure of all the horticultural societies of the province—and would do well to visit this district exhibition, and at the same time see the best exhibition of fresh fruits grow in this famous "Garden of Canada" and the best products of the amateur as well as professional flower growers of St. Catharines. It is hoped to secure reduced railway rates from Toronto and intermediate stations.

Seeing is Believing.—During this season many prominent fruit growers, and others interested in fruit and ornamental trees and shrubs, have visited the Brown's Nurseries and have expressed great admiration and surprise upon seeing the hundreds and thousands of ornamental deciduous trees and shrubs, and evergreens, as well as the hundreds of acres of fruit stock. This nursery stands in the front rank, if not the largest, of the Canadian firms.

NOTES FROM THE PROVINCES

Similkameen Valley, B.C.

J. D. Harkness

A series of demonstrations in fruit growing, including one at Keremeos on Aug. 12, under the auspices of the British Columbia Fruit Growers' Association was cancelled, owing to a death in the family of one of the speakers.

Only one thing can be said of the fruit crop here, gathered and yet to ripen—that it goes 100 per cent. in quantity and quality.

A fruit growers' institute and picnic held at the house and grounds of Mr. R. Elm-hirst, Keremeos, on July 16, was largely attended by the orchardists of this district. It was one of a series of "fruit demonstrations" arranged by the provincial government, others in the series being held at various points in the Similkameen and Okanagan. The usual procedure is to hold an outdoor meeting in the daytime and an indoor meeting in the evening, but in this case the latter was dispensed with.

The speakers were Professor Thornber of the Washington Agricultural College and Mr. N. H. Dobie of Victoria, the former dealing with such subjects as selection of fruit trees, planting, pruning, spraying, irrigating, pests, packing, etc.; while the latter presented in a most convincing manner the extreme importance of fertilization.

After the meeting the party visited the famous orchard and gardens of Mr. Frank Richter at Keremeos, which must have been a revelation, even to such experienced men, of what can be accomplished in horticulture in the Similkameen. Mr. Richter's place is rather like an agricultural college farm than a private ranch, both in extent and in the variety and excellence of its products, and as such is one of the valuable assets of the Valley. As one of the few places where fruit growing has been carried on on a considerable scale for decades, it is especially useful in showing to newcomers the Valley's capabilities. The thousands of acres of pasture land and irrigated alfalfa land, supporting a multitude of cattle and horses, afford an equally striking example of the Similkameen's resources as a pastoral country.

Manitoba

James Murray, Supt. Expt'l Farm, Brandon

The season throughout has been most favorable one, and there are bright prospects for a good crop of all small fruits and the larger wild fruits.

In our orchards we have a splendid show of bloom and a great deal of fruit set. Since blossoming time, our apple and crab trees have been severely attacked with blight, and to all appearances many trees will succumb. On the plums, there is an unusually large amount of plum pocket which will greatly reduce the crop.

This year we have nearly all our best varieties of apples producing fruit, such as Hibernial, Wealthy, Repka Kislaga, Transcendent, Hyslop and a number of good cross-breeds. All of these are grafted on *Pyrus baccata*, and came through the winter with very little winter killing, although as usual a number have been killed back at the tips.

The development of suitable apple trees for this climate is proceeding slowly but surely. For several years after this farm

was established, not a single apple tree survived the winter, and now we have several hundred hardy trees and a considerable quantity of good fruit each year. The progress made is largely due to the use of the *Pyrus baccata* as a stock. Many disappointments in planting fruit trees is attributable to growing trees on tender stocks, and the importation of trees that are not acclimatized. With the development of our own nurseries, and as people appreciate that special precautions are necessary, our progress in fruit growing will doubtless be more rapid.

Montreal

E. H. Wartman, Dominion Fruit Inspector

Large quantities of California fruits are being sold by auction three times a week. On July 28, the first arrival of California Early Crawford peaches appeared and were sold by auction at \$1.90 per 2 layer crate. On the same day, Astrachan apples from California sold for \$1.70 per 10-11-20 inch crate, beating the California delicious Bartlett pears by 20 cents on a box—rather remarkable, but apples were scarcer than pears.

Large quantities of melons have been arriving from Ontario in crates and are selling very well; but, after all, Montreal leads the world in its own Island-grown melons, some tipping the scales at 42 pounds. Pricing a nice one on Bonsecoun market a few days ago, I learned that \$1.25 was the cash price. These melons are sold with a guarantee attached from the grower that they are ripe.

Duchess apples in vicinity of Montreal are selling from 75 cents to \$1 a barrel, tree run. Crab apples are a good crop in all directions. I look for low prices in early apples as there are such large quantities of other fruits coming in. Bartlett pears of superior quality have arrived from New York state. The owner said that the duty killed the trade.

Quebec

August Dupuis

The apple crop is a failure from Quebec to Rimouski. The Duchess of Oldenburg, Wealthy, Yellow Transparent and Tetofsky are the only varieties bearing a medium crop. Thousands of bushels of fall apples will be needed and winter apples No. 1 and No. 2, will have to be brought from Huntingdon county and from Ontario to satisfy the demand of the prosperous people all along the Intercolonial Railway. It has been the custom of orchardists and traders to bring down here carloads of fall apples in bulk, and winter apples both in bulk and bags, which sell quickly.

The plum crop also has failed. The fruit which seemed to have set well, dropped after a few days of very hot weather. The curenlio has caused some damage. The only varieties bearing medium crops are the Green Gage, Coc's Golden, Moore's Arctic, Gueli and Washington.

The small fruit crop is abundant, especially the raspberries. Insects have not caused much damage.

Apple trees in most localities have dead branches, even large trees which seemed perfectly healthy last year. In young orchards, the rows of trees far from fences

or hedges suffered last winter even in the eastern townships. "The trees, either banked with earth or well mulched with coarse manure, were not damaged," so writes Mr. House of Messrs. Miller & House, nurserymen of Stanstead county.

A large number of new orchards were planted last spring and old ones enlarged in eastern Quebec, which have a good appearance. Some farmers who bought of tree pedlars, good strong trees at \$5.00 a dozen received weak, knotty trees which they should not have accepted. In our cold country only strong vigorous trees can succeed.

The Kincairdine Horticultural Society will hold its annual flower show on Sept. 2. The president of the society is Mr. J. C. Cook and the secretary, Mr. Jos. Barker.

Irrigation Convention

The second annual convention of the Western Canada Irrigation Association was held in Vernon, B. C. on Aug. 10-15. The program for the week included business sessions, papers by authorities on irrigation and several excursions to points in the valley. Many matters of great importance were discussed and a number of resolutions were passed. It was decided to hold the third annual convention at Lethbridge, Alta. next year.

The election of officers resulted as follows: Hon. Pres., Hon. H. G. V. Bulyea, Lieut.-Governor of Alberta; president, J. S. Dennis Calgary; 1st vice-president, Hon. F. J. Fulton, Victoria; 2nd vice-president, P. L. Nasmith; secy-treas., W. H. Fairfield, Lethbridge; executive, C. W. Rowley, Calgary; J. P. Hall, Medicine Hat; R. R. Bruce,

Windermere; Wm. Pearce, Calgary; R. D. Bennett, Calgary; W. C. Ricardo, Vernon and T. W. Stirling, Kelowna. The more important features of the convention will be mentioned at greater length in the October issue.

Last month the Owen Sound Horticultural Society held a two-day exhibition. While flowers and plants were the leading features, fruits and vegetables were exhibited and showed much merit. The exhibition also included a highly creditable display of ladies' work which lent variety to the show. Those present, including Mr. Wm. Hunt, Ontario Agricultural College, Guelph, who judged the horticultural exhibits, were well pleased with the show in all respects. Mr. Hunt stated that it equalled and probably surpassed any exhibition of similar nature held in Ontario this year.



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If you live in a small village or country district, you will appreciate the value of a telephone.

Haven't there been times when you would have given a good deal to communicate with a friend?

Or, perhaps you needed the services of a doctor, in a hurry, but had no way of communicating with him, at once.

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Preserving Fruits for Exhibition

J. W. Crow, B.S.A., Ontario Agricultural College, Guelph

OF late years considerable attention has been paid to the preservation of fruits in their natural condition for use at shows and exhibitions out of season. Exhibits of the kind have become a commendable feature of horticultural exhibitions in Canada, and Canadian fruits preserved in this manner have been seen at many important expositions in other countries.

Specimens selected for preservation should be as perfect as possible. They should be put down when at their very best and should of course, be handled throughout with the utmost care. Different styles of glass jars may be used, but for general use, tall, round, plain ones with either ground glass or serew-clamp tops are preferable. Fancy jars may be used for particularly fine fruits or for the sake of relieving the monotony of a large exhibit.

From the results of experiments conducted several years ago at the Central Experimental Farm, Ottawa, the following formulae are quoted as having been used successfully:

from the fruit, it should be poured off and replaced by fresh fluid."

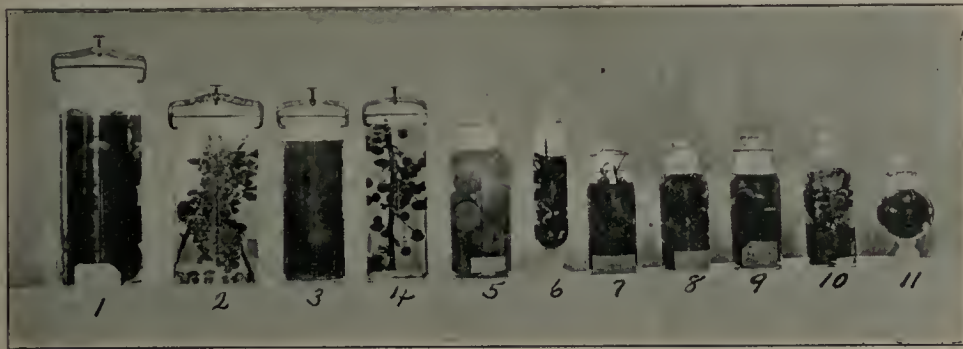
This formula is recommended for plums, grapes, cherries and gooseberries: Formalin, 3 to 5 parts; saturated solution common table salt, 10 parts; water boiled and cooled to make 100 parts. When made up, the solution will keep indefinitely.

For raspberries, the following has been recommended:—Formalin, 1 part; glycerine, 10 parts; water to make 100 parts.

Strawberries are best preserved in:—Formalin, 1 ounce; alum, 1 drachm; glycerine, 5 ounces, water, 3 pints.

Red currants keep best in a solution of:—corrosive sublimate, 1 part; glycerine, 10 parts; water 90 parts. The corrosive sublimate should be dissolved in hot water and the solution and fruit preserved in it should be labelled "Poison" as it is very deadly if swallowed.

"The glass stoppers of bottles may be remedied perfectly tight by smearing the ground surface with a small amount of light colored vaseline. This will also prevent in



Proper Sizes of Jars for Different Fruits

No. 1 (4 quarts)—Suitable for apples and pears, medium to large in size. No. 2 (3 quarts)—Same uses as No. 1. Grapes may be preserved in this or in shorter jars of same diameter. Nos. 3, 4 and 5 (2 quarts)—Suitable for small pears and apples, peaches, large plums and cherries or other branches as in No. 4. No. 6—Contains a branch of currant but the leaves and clusters of fruit are too crowded. Suitable for small size fruits such as gooseberries. Nos. 7, 8, 9 and 10 (1 quart)—Suitable for strawberries (fastened to supports) as in No. 7; raspberry sprays as in No. 9; gooseberry sprays as in No. 10. No. 11—Suitable for small size fruits such as gooseberries.

"Kerosene oil was found to be the most satisfactory fluid for preserving strawberries, having just about the right density to allow them to settle to the bottom of the jars.

"For red and black cherries, black currants, red and black raspberries, and other red and very dark colored fruits, including the red and dark grapes and red apples, a one and one-half to two per cent. solution of boric acid in water. For the yellow varieties of raspberries, white and yellow cherries, peaches, gooseberries, white currants and other light colored fruits, including yellow and green apples, a two per cent. solution of zinc chloride. Sulphurous acid was found very useful in brightening up and bleaching all discolored specimens of white and yellow fruits and gave them a very attractive appearance. The acid was used of the ordinary strength in the proportion of four ounces to the gallon of fluid. It was found that the use of 15 per cent. commercial alcohol was sufficient to prevent injury from freezing during transportation in winter.

The following notes are taken from a publication by the Colorado Agricultural College bearing on the subject:

After filling, the jars should be "kept in a cool, dark place until the time for exhibition. Frequent examination should be made to determine how well the fruit is keeping. If the liquid becomes colored

great measure the sticking of the stoppers when it is desired to remove them."

Mr. D. W. Buchanan, of St. Charles, Man., who has experimented considerably with different materials sends the following notes:

"Plums may be preserved in corrosive sublimate, one ounce to the gallon of distilled water. Ten per cent. of glycerine may be added to prevent shrinkage of pulpy specimens. More may be used to advantage if expense is not a consideration. Salicylic acid, one ounce to five of water, with glycerine, has not given good results with plums. We have used coal oil for strawberries, blackberries and black cherries, but this should not be used only in perfectly tight bottles. Cork stoppers, even when sealed with wax, are not suitable for use with coal oil. Allow for expansion of the oil in warm weather. Formalin, two to three per cent. and alcohol 10 per cent. is useful for strawberries, and also for soft colored specimens.

"Zinc chloride, two per cent., is good for white and red currants. Ten per cent. of alcohol may be added. Boric acid, one ounce to four gallons of water, for black currants, with ten per cent. of alcohol added. For gooseberries, copper sulphate one per cent. and alcohol as above is excellent.

"Sulphurous acid, one part, alcohol, one part, water eight parts, is the best thing we have found for white and light colored

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You will also need Excelsior Barrel Cushions, Excelsior Box Cushions, Parchment and Wax Caps, Manilla and White Tissue Wrappers, Lace Circles and Box Lace, Curved Elm Liners.

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apples, but for red and green apples we have not found a good preservative."

There is still some valuable experimental work to be done on this question. The writer would be glad to receive any further information regarding it.

Cherries, raspberries, currants and gooseberries look best when preserved on the branch. Jars used for this purpose should be large enough to permit of the fruit taking its natural position without crowding. Strawberries may be prevented from crushing each other by tying the stem to a small twig with a bit of thread.

POULTRY DEPT.

Conducted by S. Short, Ottawa

To prevent injury to the smaller chicks and harmful annoyance to the pullets, the earliest hatched and largest cockrels should be separated from the other chickens by this time of year. If these cockrels are of no special breeding they should be disposed of now. April and May hatched cockrels should, in condition, now weigh from four to six pounds each, according to the breed to which they belong. There is therefore, no profit in holding them until November or December, for they will consume the value of the one or two pounds gain in flesh in the two months, besides very likely selling cheaper than now, for the farmers have not time to market their spare fowl at this season but rush them all to market in the cold weather of late November, or December; thus the large supply lowers the price.

There is also the question as to which

are the best males to keep for breeding next season. If the object of the poultry keeper is to develop a winter egg-laying strain he should have started last spring by hatching from eggs laid only by females of marked qualities for egg production, judged from the records of last winter. Presuming this was done, now arises the question of which cockrels to keep over for next season to improve the strain in egg production.

The first pullets to lay in the autumn are those that matured the fastest, for a female cannot lay until she has made the necessary growth or mature development. The corresponding condition in the males would be early crowing and inclination to mate.

At this season there should be no difficulty in noting these characteristics in the cockrels, and where there are a number showing equal growth and sprightliness, preference first should be given to those having the best body shape, and most promising points of the breed they represent.

The old hens should now be weeded out. They have, in most cases, laid nearly all the eggs they intended to lay this year and will if not soon disposed of, begin to moult, which reduces their flesh and owing to pin feathers make them almost unfit for table use until the new feathers are fully grown and they have regained their normal weight, all of which takes from two to three months. Discard them now and give the growing pullets the benefit of the extra yard space.

The October issue of THE CANADIAN HORTICULTURIST will be devoted chiefly to the fruit industry of British Columbia. Growers in that province should not fail to secure that edition. Those who are not already subscribers should become such this month. The subscription price is only 60 cents a year, or two years for \$1.

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Fruit Meetings in Quebec

THE Pomological and Fruit Growing Society of the province of Quebec held an interesting two-day meeting in August. President Robert Brodie of Westmount occupied the chair. The first meeting was held at Hemmingford, and the second at Covey Hill.

A paper on "The Planting of a Family Orchard in Eastern Quebec" was read by Mr. J. C. Chapais, of St. Denis. This paper pointed out the advisability of every farmer having a piece of ground in fruit so that the family table could be supplied the year round. Extracts from this paper will be published in a subsequent issue of THE CANADIAN HORTICULTURIST.

Mr. W. T. Macoun of the Central Experimental Farm, Ottawa, gave a very practical and interesting address on "Strawberry Culture" in which he dealt with the methods of culture and the best varieties to grow.

At the evening session, Prof. W. S. Blair, of Macdonald College, gave an orchard talk. He dealt with the location of the orchard, soil, planting of the tree and caring for it during the early years of its life.

Prof. G. Reynaud of La Trappe, contributed a paper on "The Evaporating of Fruits and Vegetables," in which he pointed out that this process of preservation could be commercially carried out on a large scale. The advantage of dried fruits was that they could be kept in a condition fit for consumption in a much smaller space than was the case with fresh fruit. In Newington, much has been done in this direction and large quantities were exported to the European market at a good profit. Mr. Reynaud then went on to point out that when the apple crop in France was a failure, there would

be a good market for the evaporated fruit, which was suitable for cider making. He also remarked that peas, beans, carrots, cauliflower, onions and cabbage could be dried very easily and would be a profitable product on the market.

At Covey Hill, Mr. Macoun spoke on "The Development of Experimental Work." This paper will be published in a subsequent issue of THE CANADIAN HORTICULTURIST.

Professor Swaine of Macdonald College gave a very practical talk on "Orchard Insects and Their Control," in which he pointed out that there were two kinds of these insects, biting and sucking. The former fed upon the leaves of the plants and trees and the latter sucked up the juices and deprived vegetation of its vitality. He enumerated several of these enemies of the orchard, briefly sketching their life history, mentioned the parasites to which some of them are prey and gave formulae for remedial measures that might be adopted, laying special emphasis on thorough spraying at particular seasons. He pointed out that by the adoption of the latter, a very large percentage of fruit which was now practically worthless could be made a valuable market product.

In a paper on "Roses," Mr. G. P. Hitchcock, of Massawippi, gave some very interesting historical details concerning this much admired flower, of which he said there were between 300 and 400 distinct species and the cultivation of certain of these for commercial purposes gave employment to thousands of people. He then touched on the culture of roses, mentioning the kind of soil, fertilizers, and so forth, required for

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HEINTZMAN & CO., Square, our well-known make, 7 1-3 octaves, carved legs and lyre, overstrung scale, serpentine base, an elegant piano in every way and will give good satisfaction, thoroughly guaranteed; price \$500. Special \$145

CHICKERING & SONS. Square piano, with curved legs and lyre, handsome rosewood case, serpentine base, top mouldings, 7 1-3 octaves, in elegant condition. This is a first-class piano in every way, by one of the best manufacturers in the United States; price \$800. Special at..... \$150

STEINWAY & SONS, NEW YORK, the best-known manufacturers in United States, beautiful rosewood case, with carved legs and lyre, overstrung scale, 7 octaves, an elegant piano, case refinished; action thoroughly overhauled, and in elegant condition. Regular price \$800. Special at..... \$160

PLAYER-PIANO HANDSOME COMBINATION PLAYER-PIANO, with \$15.00 worth of music, made by a first-class American manufacturer, beautiful mahogany case, 7 1-3 octaves, 3 pedals, full length music rack, full metal plate, in every respect, both for hand playing and machine, and is an exceptional bargain, due to our desire to clear out our stock for the Fall trade. We offer this special \$750 Player-Piano for \$500. \$15 worth of music goes with the piano, subject to your selection from catalogue. Terms, \$100 cash, balance \$30 or more per quarter, with 6 per cent. interest. If you want a first-class Player-Piano communicate with us in reference to this one.

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STANDARD, TORONTO, Cabinet Grand, walnut case, 7 1-3 octaves, full length music rack, nicely decorated top door, 3 pedals; regular price \$375. Special at..... \$225

PALMER Upright Cabinet Grand, handsome mahogany case, rented a short time only, in first-class condition, cannot be told from brand new, with full length music rack; nicely decorated top door. Boston fall, 7 1-3 octaves, 3 pedals, an elegant instrument in every way. Regular price \$240 \$375. Special at.....

WORMWITH & CO., very handsome cabinet grand, walnut case, with full metal plate, Boston fall; colonial design, swing music rack, 3 pedals. This is an exceptionally good instrument, with very handsome case and good tone; fully guaranteed, and good value at..... \$250

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ARLINGTON, NEW YORK, large cabinet grand; nice hand carved panels, full length music rack, Boston fall, 7 1-3 octaves, 3 pedals, a very handsome instrument. Regular price \$175. Special \$245 at.....

WORMWITH & CO., large cabinet grand, handsome mahogany case, rented a short time only, handsomely decorated top door, full length music rack; Boston fall, 7 1-3 octaves, 3 pedals and orchestral attachment, susceptible of banjo, mandolin, and harp effects, etc., double trusses, an exceptionally fine piano and in first-class condition and elegant value. Fully guaranteed... \$275

LISZT, TORONTO, extra handsome mahogany case, with Colonial design, plain top door; Boston fall, double trusses, 7 1-3 octaves, 3 pedals, full metal plate, used less than six months, fully guaranteed. Regular price \$400. Special \$285 at.....

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Persons living in the east can obtain information by calling at 306 Manning Chambers, Toronto.

their successful cultivation. He referred to the different means of propagation, touched on the insect pests to which the plants are liable and named varieties which he considered might be fairly easily grown and give much satisfaction.

Professor Blair of Macdonald College gave an interesting talk on "Orchard Work," particularly with reference to the planting of trees and the care of the orchard in the earlier stages of its growth. He also pointed out that in horticulture, as in any other business, a man must take a deep interest in his work, must keep in touch with up-to-date methods and do nothing slovenly or by rule-of-thumb if he would make a success of the occupation in which he is engaged.

New Society in Quebec

At a meeting held at Macdonald College on June 24th, a new Society called the Quebec Society for the Protection of Plants from Insects and Fungous Pests was organized. The following officers were elected: President, Prof. W. Lochhead, Macdonald College; vice-president, Frere Liguori, La Trappe, Que.; sec-treas., Douglas Weir, Macdonald College; directors, Rev. Dr. Fyles, Levis, Que., Rev. G. Ducharme, Rigaud, Que.; Auguste Dupuis, Village des Aulnaies, Que.; A. F. Winn, Montreal; Dr. W. Grignon, Ste. Adele, Que.; curator-librarian, J. M. Swaine, Macdonald College.

A substantial grant has been given the society by the Department of Agriculture of Quebec. The success of the society is practically assured on account of the interest manifested by both French and English workers. It is truly provincial in its aims, work and membership. There will be two meetings each year, a general winter meeting at Macdonald College for the trans-

action of necessary business, the reading of reports and papers, and a general review of the year's work; and a summer field meeting at some outside point in the province of Quebec. As the society exists for the benefit of the province, it is urged that all outbreaks of insect and fungous pests be reported to the secretary, Macdonald College, so that possible help may be given promptly.

Vegetable Growers' Picnic

Frank Whitehall, London,

That the London branch of the Ontario Vegetable Growers' Association is very much alive was evidenced at their picnic held at Springbank on July 25th. The picnic committee aimed high with the result of having the best picnic yet.

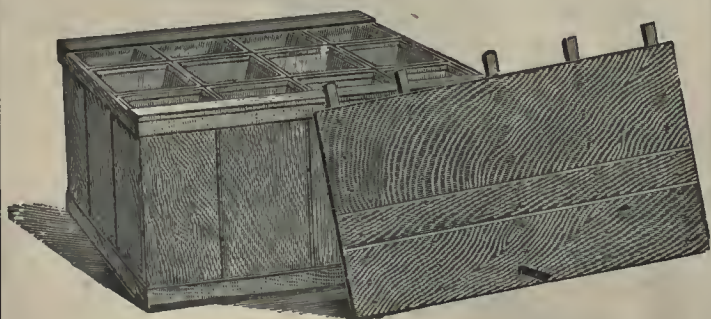
A big program of sports was enthusiastically carried out by those present, and the thanks of the association are tendered to those who so kindly denoted prizes, thus adding greatly to the success of the picnic.

After a sumptuous repast to which about 300 of the gardeners and their friends sat down, the prizes were distributed, and the merry makers returned to their homes, to look forward to next years' picnic.

The large range of houses that is being erected for the Dominion Orchard Co., of Rougemont, Que., is being built by the King Construction Company of Toronto. These houses will be used for the forcing of fruit and vegetables. There are six houses in the range, averaging 125 feet long by 21 feet 8½ inches wide. They are all style A, King Construction. Mr. R. W. King personally surveyed the ground and furnished plans for the entire effect, including the heating apparatus.

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We are Headquarters for
 all kinds of Splint Baskets



Veneer supplied for the protection of trees from mice during winter

FRUIT PACKAGES A SPECIALITY

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Mention The Canadian Horticulturist when writing

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**APPLE ASSOCIATIONS
 GROWERS, ETC.**

Before making your
 arrangements for the
 coming season, please
 communicate with

T. J. POUPART

COVENT GARDEN, LONDON

— ENGLAND —

or to the Canadian Representative

A. LAWRIE

FOREST, ONTARIO

Notice to Fruit Shippers

J. A. Ruddick, Cold Storage Commissioner, Ottawa

On Aug. 7th, a circular was sent from this office to the leading fruit growers and shippers, and to the press as well, stating that the entire space of one cold storage chamber had been engaged on the steamers "Ontarian" and "Sicilian," sailing from Montreal for London on Aug. 22nd and 29th respectively, and that the space in these chambers would be available for shipments of early apples, or other tender fruits, at the regular rate of freight (30 shillings per ton measurement of 40 cubic feet), payable to the steamship companies in the usual manner.

As the response to this notice has been very encouraging, I beg to announce that I have contracted with the agents of the Thomson Line for one chamber on the SS. "Hurons," sailing from Montreal for London on Sept. 5th. Shipments for this steamer should reach Montreal not later than the morning of Sept. 4th, and intending shippers should apply to this office for space without delay, stating the number and size of the packages to be shipped, so that a proper estimate of the space required may be made.

Enclosed find a remittance for two years' subscription to THE CANADIAN HORTICULTURIST. I feel that I cannot be without your paper.—Wm. Craig, Sunny Beach Farm, Auburn, Me., U. S. A.

The 16th international convention of the North-west Fruit Growers' Association will be held in Portland, Ore., December 2, 3 and 4. Preparations for a big convention are being made. Prof. E. R. Lake of Corvallis, Ore., is the secretary for 1908.

F. O. B. Contracts for Apples

P. J. Carey, Dominion Fruit Inspector, Toronto

An important matter for the consideration of growers and dealers is "sale contracts." Almost every contract made in the sale of apples last season was violated one way or another. It is true that the "money stringency" had considerable to do with the upsetting of contracts, but the fact remains that with contracts made as they were made last year, it is little use in making a sale at all.

It is being advocated, and rightly, from ocean to ocean, that f.o.b. car sales, as much as possible, is the proper way to dispose of our fruit; and surely contracts can be made secure, so that our apples will stay sold when they are sold, whether the markets go up or down.

Ship to Reliable Firms.—The disastrous season experienced by some of the growers last year, will have the effect of making them more cautious regarding the firms to whom they ship their apples. Mr. A. E. W. Peterson, of Toronto, has for years been connected with Jas. Adam, Son & Co., of Liverpool, Jas. Lindsay & Son of Glasgow, and Nothard & Low of London. Each of these firms have a splendid record for reliable dealings with fruit growers. One of the firms was established in 1819; the others have been almost as long in the business. Judging from the reports received from the growers that have been consigning their apples to these firms, they have been very satisfactory. Mr. Peterson will be very pleased to correspond with any of the growers for their fall crop of apples.

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Used with perfect results by largest growers

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24 x 36....	\$1.15 " "

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Wrapping Papers. Twines. Pulp Board
Box Linings. Corrugated Straw Boards.
Manilla Tissue. Lace Papers. Lace
Box Tops.

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Appointments arranged by letter or phone.

We offer for Fall Planting the Largest General Assortment of Stock ever offered in Canada.

Our list embraces a full assortment of both Fruit and Ornamental lines.

Our Stock has made a wonderful growth this season, and customers can depend on receiving Extra Choice Stock. Healthy and vigorous, and true to label.

In Ornamental Specialties we offer specimen trees for individual planting of BECHTEL'S DOUBLE FLOWERING CRAB, CAMPERDOWN ELM, CUT LEAF WEEPING BIRCH, WEEPING BEECH, OAKS, JAPAN MAPLE, TREE HYDRANGEA, etc., etc.

FLOWERING SHRUBS supplied in assorted collections, allowing for succession of bloom and foliage effects for all the seasons.

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REPRESENTING

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GLASGOW

J. & H. GOODWIN
Manchester, Liverpool and Hull

Will be pleased to keep you advised
regarding the condition of the Euro-
pean Markets. If you have any
apples for export, call or write

FRED. BARKER
25 CHURCH ST., TORONTO, CANADA

Prospects in England

J. and H. Goodwin, Manchester

Crops in England and on the European continent, which were at first expected to be heavy, are now said to be only a little larger than last year when the supply of apples on this side was generally short. There is no doubt under any circumstances that there will be a free demand in this country again for good American stock, especially red varieties, but as it is more than likely that supplies both from the United States and Canada will be large, early in the season, high prices must not be looked for. Our opinion is that after the heavy losses suffered last year on stored fruit, growers and dealers will be inclined to place their stock on the market early.

The trade in American apples in Manchester last season, compared with other markets, gave very good results and we are pleased to see that shippers are beginning to realize more the important position this port holds. The fruit auction sales held here regularly, attended by the best buyers from all the leading centres in this country, and the quantity of foreign fruit of all descriptions, shows a considerable increase every year. We anticipate that the coming

season will show an even greater advance in shipments from America to Manchester, most of our friends having expressed their satisfaction with the results obtained here.

Coopers' Fluids

Further evidence of the satisfactory results that have been had from the use of the V1 and V2 Fluids since they were introduced into Canada last spring by Wm. Cooper and Nephews, whose advertisement appears in another column, is given in the following letters:

Mr. F. G. Stewart, Homer, Ont.—“I used your V2 Fluid on the aphids this May and in a short time there was not one living aphid to be seen. I have great pleasure, therefore in recommending it to all my friends and the public.”

Mr. S. R. Wallace, President, Burgessville Fruit Growers Shipping Association, Burgessville, Ont.—“I used V2 Fluid on the 15th of June and am pleased to say that the trees sprayed are looking very healthy and the fruit seems quite free of spots or fungus. Of course fungus may develop yet. I may say that the V1 Fluid has killed the oyster-shell scale wherever it came into contact with them.”

Mr. N. E. Anderson, Vernon, B. C.—“I have used your sprays this year for all my sprayings and have had excellent results although some of the old hands have kept saying, “oh! it's no use.” I have charge of 13 acres of bearing trees, apples, pears, plums, cherries and prunes, and outsiders say that they have never seen trees looking better. No rust of any kind in orchard can be seen, and as far as clean fruit goes, fully 90 per cent. will grade No. 1. One corner in particular of 40 Starks has always been scabby but this year there is very little to be seen.”

A copy of the catalogue for bulbs for 1908 offered by M. Herb Naples, Italy, has been received. All kinds of bulbs and tuberous rooted plants are illustrated and descriptions are published in English, German and French.

IMITATION PROVES THE WORTH OF THE ORIGINAL

The “**SOVEREIGN**” is the original hot water boiler with “**the larger first section.**” It is this improvement that reduces the coal consumption of the hot water heating apparatus to an economical basis. The larger first section is only one point of merit in the “**SOVEREIGN**” there are nineteen other.

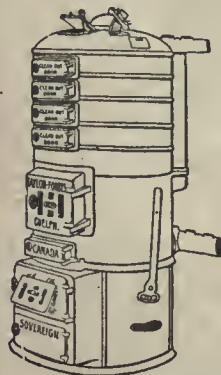
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For Best Family Trade. Boxes Preferred.

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OR POULTRY TO CONSIGN

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lots, write us and we can sell
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Our Trade in France

Manufacturers and dealers in produce wishing to cultivate trade in France should write to the British Chamber of Commerce (Canadian Section), 17, Boulevard de la Madeleine, Paris, France. What the Chamber does for its members:

1. Offers the experience of 40 years of continental trade.
2. Puts Canadian houses in touch with suitable agents.
3. Obtains information on the commercial standing of French firms.
4. Notifies changes in French customs duties, proposed commercial legislation, likely to affect special trades, etc.
5. Communicates inquiries from the French buyers of Canadian goods.
6. Files members' catalogues for the information of buyers.
7. Gives commercial and statistical information of all kinds.
8. Aids members in customs and technical difficulties.

Bogus Paris Greens

Editor, THE CANADIAN HORTICULTURIST: In the July issue I noticed an article by Mr. R. J. Messenger, Bridgetown, N. S., on "Spraying Mixtures," in which he speaks of "the gullibility of farmers" in respect to spraying mixtures of different kinds, which is all very true. While I have not tried many of the new preparations, I have tried some of them and found them wanting.

Mr. Messenger seems to have much faith in the Paris green, and this is what I want to draw attention to. We now have to pay 35 and 40 cents a pound for Paris green and do not get the results that we received when we paid 17 or 18 cents a pound. We have

to use from three quarters of a pound to one pound to 40 gallons of water to get the same results that we used to receive from a quarter of a pound. We are being gulled as badly in the purchasing of Paris green as we are in some of the other preparations.

This season, I bought a one-pound package of Paris green that would not mix with water at all. A neighbor had the same experience. We should have some way of getting redress from parties putting such inferior stuff on the market.

As fruit growers we have to put a first class article on the market when we see fit to put it up in a closed package, and it is perfectly right; but I want to see the fellows who put up the articles that we have to use, placed on the same footing, so that when we buy a package of Paris green to spray our trees or potatoes we are reasonably sure that we will accomplish what we are working for—a clean crop of fruit or a good crop of potatoes.—M. G. Bruner, Olinda, Ont.

Canadian Exhibitions in 1908

Charlottetown, P. E. I.Sept. 22-25
Halifax, Nova Scotia.Sept. 2-10
Kentville, N.S., Horticultural.Oct. 7-9
London, Western Fair.Sept. 11-19
New Westminster, B. C.Sept. 29-Oct. 3
Ottawa, Central Canada.Sept. 18-26
Sherbrooke, Que.Aug. 29-Sept. 5
St. Catharines, Niagara District.Sept. 17-18
St. John, New Brunswick.Sept. 12-19
Toronto, Canadian National.Aug. 29-Sept. 14
Toronto, Ontario Horticultural.Nov. 10-14
Victoria, B. C.Sept. 22-26
Winnipeg, Horticultural.Sept. 3-5

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Secure a WEALTH OF BLOOM
next summer by planting

Pæonies Oriental Poppies
Iris Hardy Phlox
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Montreal to Glasgow

(New Twin Screw Steamers)

Montreal to London

(calling at Havre, France)

Boston to Glasgow

To Liverpool

STEAMER	From MONTREAL	From QUEBEC
VICTORIAN	Friday, 11 Sept., 5.00 a.m.	- 12.00 p.m.
CORSICAN	Friday, 18 " 6.00 a.m.	- 6.00 p.m.
VIRGINIAN	Friday, 25 " 5.00 a.m.	- 12.00 p.m.
TUNISIAN	Friday, 2 Oct. 5.30 a.m.	- 4.30 p.m.
VICTORIAN	Thursday, 8 " 10.00 a.m.	Fri., 9, 11.30 a.m.

To Glasgow

STEAMER	From MONTREAL
GRAMPIAN, new	Saturday, 12 Sept., Daylight
PRETORIAN	Saturday, 19 " Daylight
HESPERIAN, new	Saturday, 26 " Daylight
IONIAN	Saturday, 3 Oct., Daylight
GRAMPIAN, new	Saturday, 10 " Daylight

To London, via Havre, France

STEAMER	From MONTREAL
HIBERNIAN	Saturday, Sept. 5th
CORINTHIAN	Saturday, " 12th
HUNGARIAN	Saturday, " 19th

STEAMER	From MONTREAL
PARISIAN	Saturday, Sept. 26th
ONTARIAN	Saturday, Oct. 3rd
SICILIAN	Saturday, " 10th

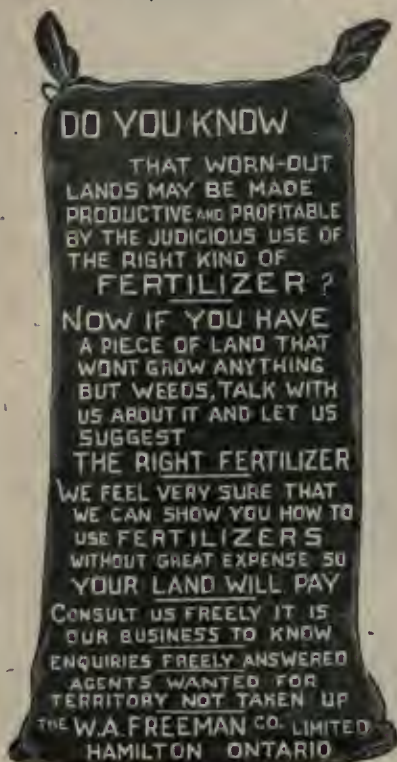
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Fertilize Your Lands



Horticultural Exhibition

In connection with the Ontario Horticultural Exhibition which will be held this year in the St. Lawrence Market Arena, King St., E., Toronto, the county exhibit promises to be of special interest. While the number of counties is somewhat reduced from a year ago, and some of the best counties are not represented, those remaining have in many cases increased their grant. Huron county has again voted \$75 for their exhibit, and those in charge state that they will far surpass the show that they made last year. Norfolk county has voted the sum of \$50, which will be

used along similar lines to that of Huron, the intention being not to allot the money in prizes, but to spend it in sending a representative exhibit of fruit and its products to the show.

The Oxford county council refused the request for a grant this year, but thanks to the generosity of Mr. J. C. Harris of Ingersoll, the county will again be represented. Mr. Harris has collected the sum of \$25 which is necessary for the prize list, and is in addition doing all he can to promote the exhibit of fruit from this county.

The St. Lawrence Arena lends itself particularly well to an exhibit of this kind. The entire show will be on the one floor and not divided as was required in Massey Hall. The entrance to the Hall will be beautifully decorated and altogether the show promises to far surpass any previously held in Toronto.

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Capital Paid-up. . . \$4,990,000.00

Rest, . . . \$4,990,000.00

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Order your Evergreens and Stone Fruits to be shipped in the Spring. Have all the rest of your Stock shipped this Fall; you will meet with the best of success.

Place your Order at once for both seasons. Our Stock is better than ever and we have more of it. Over 500 acres in Trees and Plants.

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To insure success in growing under glass the houses must be of modern construction. We have been designing and constructing greenhouses for over fifteen years and our "King Construction" houses are giving satisfaction in all parts of America. Growers desiring to erect their own greenhouses can obtain all or part of the materials necessary at our works. Plans and estimates prepared for intending builders at a moderate cost. Write and tell us the kind of a house you purpose erecting and we will send one of our Illustrated Bulletins by return of Mail. ∴ ∴ ∴ ∴ ∴ ∴ ∴ ∴

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The Best Exhibition of the Kind in the Dominion. In the Heart of the Fruit District. At the Height of the Season. In the Garden of Canada.

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Niagara District Horticultural Exhibition

Under the Auspices of the St. Catharines Horticultural Society

To be Held at the Armory

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ON THURSDAY
AND FRIDAY

SEPT. 17 and 18, 1908

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Honey, Vegetables

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Many Novel and Interesting Competitions—Mammoth Exhibits for the Rittenhouse Prize—Pyramids of Apples, Pears and Tomatoes—Arms of Grapes—Ropes of Onions—Wrapping and Packing of Apples, Pears and Peaches—Best methods of Preserving Fruits, etc. Send for Prize List.

Reduced Railway Rates

From all stations on the Grand Trunk Railway within a radius of eighty miles of St. Catharines, single fare rates will prevail, good going on afternoon trains on Sept. 16th, and all trains on Sept. 18th and 19th; good to return up to and including Sept. 20th.

W. B. BURGOYNE, President.

W. H. BUNTING, 1st Vice-President.

C. A. HESSON, Treasurer.

ROBT. THOMPSON, Chairman Executive Com.

GEO. GORDON, Secretary Executive Com.,
18 Queen Street, St. Catharines.

Address all communications in regard to Prize Lists, Entries, etc., to the Secretary Mr. Geo. Gordon.

Origin of Windsor Cherry

"Cerasus," Kelowna, B.C.

In August *Better Fruit*, an Oregon publication, I have read an article in which the writer, after congratulating Oregon upon originating Bing and Black Republican cherries, gives credit to some other part (unnamed) of the Pacific coast fruit country, for the production of Windsor cherry. As the writer of the article is a well known fruit man in the cherry growing centre of Oregon, the statement should I think be corrected.

4 RASPBERRY PLANTS

OR

2 HERBACEOUS PERENNIALS

The Raspberries include 3 red varieties:—King, Ruby Red, Herbert; and 1 black, Cumberland. The best that grows. The perennials are *Helianthus Maximiliana* and *Helianthus Rigidus* (Prairie Sunflower). The former blooms in late Fall and the latter in the Mid-Summer.

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PETERBORO - CANADA



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FLOWER POTS

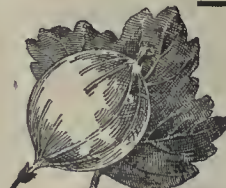
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¶Try our pots for growing early tomato plants, etc.

¶Write for Price List and Catalogue.

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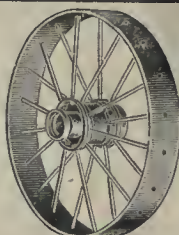
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Gooseberries, Josselyn, Downing, Houghton.—Currants, Perfection, Ruby, Cherry, White Grape, Lees Prolific Champion, Black Naples.—Raspberries, Herbert, Cuthbert, Marboro.—Garden Roots, Asparagus, Rhubarb, Perennial Celery.

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Windsor is quite well thought of in British Columbia, and quite extensively planted, and I would like to state through THE CANADIAN HORTICULTURIST that Windsor is a Canadian variety having its origin at Windsor, Ontario.

Windsor Salt

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—to give
just the
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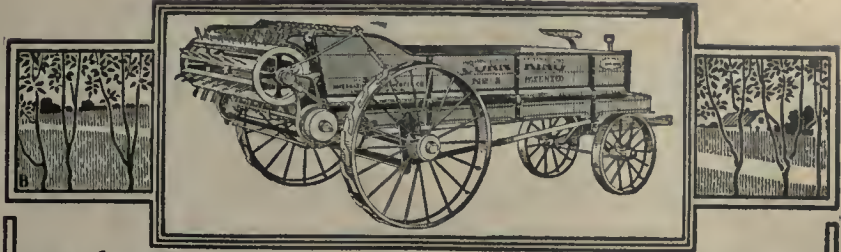
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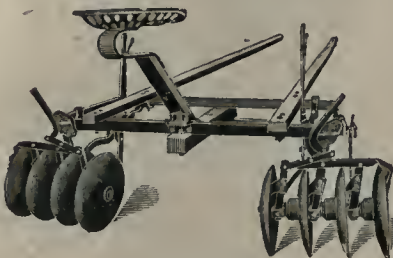
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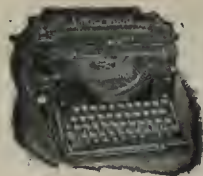
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TORONTO

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Nova Scotia

Eunice Watts

The nests of the fall web-worm (*Hyphantria cunea*) have this year appeared in exceptionally large numbers, not only on orchard but on ornamental trees; also by the wayside and in woods, chiefly on birches and alders, but maples and elms do not escape. When the nests appear in our own orchards, they are at once cut out, and up to the time of writing, about 60 nests have been destroyed. Almost every orchard in this district is infested more or less with these caterpillars, but it is comforting to know that this particular pest has a fashion of becoming abundant in some years and then decreasing to scarcity. However, it is not well to trust to Providence in this way, for if the infested branches are not cut out, the foliage surrounding the nest should be sprayed with an arsenite, otherwise, they may, besides looking unsightly, do considerable damage. In the south there are two broods of this insect, in the north there is but one. When mature the caterpillar descends to the ground, there spinning its cocoon in which it hibernates until next season.

Although the apple crop will not be so great as at first expected, the general opinion is that the fruit will be larger and cleaner than that of last year. Crabs are abundant in some parts.

The very heavy rains have greatly assisted in the swelling of all fruits, and in this part of the province the storms have not done much damage. Wild raspberries and blueberries have yielded enormous crops, and cultivated berries have done well. Fine blackberries were marketed on Aug. 7th. Duchess and Red Astrachan apples were marketed on Aug. 6th.

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The Canadian Horticulturist

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No. 10

The Fruit Industry of British Columbia

Frank J. Clark, Bureau of Provincial Information, Victoria

FRUIT-GROWING is one of the infant industries of British Columbia, but it is growing rapidly and is quite certain, ere many years, to rival mining, lumbering or fishing. A few years ago the man who would venture to describe the Kootenays as fruit-growing districts, would be looked upon as a visionary or an imbecile; to-day all southern British Columbia is acknowledged to be the finest fruit country on this continent. Not only will it produce fruit in abundance, but the quality of the fruit is superior to that grown in any other part of America.

In 1903, Messrs. Stirling & Pitcairn, of Kelowna, on Okanagan Lake, shipped a trial carload of apples to Great Britain. The shipment consisted of Spys, Baldwins Ontarios and Canada Reds. They arrived in Glasgow, Scotland, on November 9th, in splendid condition, and sold at six shillings a box, or about \$1 more per barrel than the choicest eastern Canadian apples—reckoning three and a half boxes to the barrel. The British Columbia apples aroused much interest amongst fruit dealers as well as consumers, and many letters were received by the consigners from persons eager to secure shipments of the splendid fruit.

In 1904, the British Columbia Department of Agriculture forwarded a collection of British Columbia fruits to London, England, for exhibition purposes. It consisted of apples, pears and plums. The exhibit was greatly admired, and evoked the highest encomiums from the newspapers. The *London Times*, while hesitating to declare the fruit superior to the best English specimens, admitted that they very nearly approached them in color, shape and flavor, even after having travelled 6,000 miles by railway and steamship. The Royal Horticultural Society's appreciation of the fruit was shown by the award of the society's gold medal and diploma.

One result of the exhibit was the deluging of the Agent-General of British Columbia (Hon. J. H. Turner, Finsbury Circus, London,) with letters from prominent fruit-dealers, anxious to do business with British Columbia fruit-growers. To momentarily satisfy the clamor for British Columbia fruit, and

to emphasize the fact of its good qualities, the department of agriculture, shipped in cold storage a full car-load of assorted fruits to London in the fall of 1905, in charge of Mr. R. M. Palmer, provincial horticulturist. This fine collection was the chief attraction at the Royal Horticultural Fruit Show at London, England, and at several provincial shows, and was awarded many prizes.

SUCCESSES AT EXHIBITIONS

Following up the success of 1905, the department of agriculture, forwarded a commercial exhibit in 1906, consisting of apples and pears, to Great Britain, in charge of Mr. Palmer. This fruit was shown at Edinburgh, York, London, and

broken up, and sold to fruit dealers at the highest prices.

IN NEW ZEALAND

An exhibit of apples was forwarded to Christchurch, New Zealand, and made one of the chief attractions in the fruit division of the New Zealand International Exhibition. Writing of this collection Mr. W. A. Burns, Canadian Commissioner for New Zealand, said: "The shipment arrived in excellent order, and the quality and range of varieties is most creditable. The newspapers and the public have gone fairly wild over the exhibit, and now that it has been proven that the Canadian apples can be transported safely to this market, a good trade should follow. I may say that the price of San Francisco apples at the present time is eight pence per pound in the local market, so you will see that there is a good margin of profit."

In 1907, a collection of over 800 boxes of apples and pears was sent to Great Britain, and shown at all the principal exhibitions and horticultural shows—at Edinburgh, Hereford, Tunbridge, Exeter, Sheffield, Crystal Palace, London, and Royal Horticultural Show, London. Gold and silver medals and certificates of merit were awarded to the exhibit as representative of the province, while individual exhibitors won many silver-gilt, silver, and bronze medals, and certificates of merit.

MARKETS AVAILABLE

These repeated triumphs have resulted in the establishment of a permanent market in Great Britain, to which several growers are now catering exclusively. Australia also wants British Columbia fruit, one grower alone receiving an order last season for 70,000 boxes of apples. Thus fruit-growers here have the satisfaction of feeling that apart from the unlimited market afforded by the prairie provinces, they can also count upon big orders and big prices from overseas. At present their's is an embarrassment of riches, so far as markets go, for they cannot possibly supply the demand.

At the fifteenth annual convention of the Northwest Fruit Growers' Association, held in Vancouver, December 5-8,

Excels all Others

THE CANADIAN HORTICULTURIST excels all United States fruit papers that circulate in British Columbia in that it gives more cultural hints and discussions upon markets, packages and other questions from the Canadian viewpoint. Your publication devotes much space and energy to British Columbian interests, which United States papers do not. May it continue in influence and progress.—Chas. Webster, Kelowna, B. C.

other cities, and won praise from press and public at every point. At Edinburgh, the gold medal of the Royal Horticultural Society of Scotland, was awarded the collection, and at London the province again won the gold medal of the Royal Horticultural Society for the best collection of apples, while seven silver and silver-gilt medals, and three bronze medals were awarded to individual exhibitors, whose contributions made up the collection. As in former years, the Canadian Pacific Railway Company co-operated with the government of British Columbia in the collection and transportation of the fruit, generously furnishing cool storage cars and cool storage space on its Atlantic steamships, free of charge. After going the rounds of the fruit shows and securing unqualified approval everywhere, this collection was



Sir Thos. G. Shaughnessy's Young Orchard, Summerland, British Columbia

1907, the Kelowna, British Columbia, Fruit Growers' association, won the first prize gold medal, for the best display of fresh fruit, and Monsberger & Hope, of Grand Forks, B. C., won second prize.

In two other competitions—best five boxes of apples, five varieties, and best box of commercial apples—T. G. Earl, Lytton, B. C., won third prizes. In these competitions, British Columbia

was pitted against the choicest productions of Oregon and Washington.

ACREAGE FIT FOR FRUIT

It has been estimated that in southern British Columbia, there are over 1,000,000 acres of land fit for fruit growing, while in the great northern interior from 3,000,000 to 4,000,000 more acres will be found available for fruit. Apples, plums, pears and cherries are grown with great success on the Skeena River, and it is believed that this will prove true of most of the valleys of the northern portion of the province.

In 1901, there were 7,430 acres in fruit, with a grand total of 650,000 fruit trees. In 1906, the fruit land of the province increased from 29,000 acres, with 1,700,000 trees, to 49,000 acres, with 2,700,000 trees. In the million tree increase there is included fruit bushes, some 41,000 ornamental trees, 41,000 rose bushes, 22,000 plants and 17,000 shrubs, but the figures do not include the trees sent out from nurseries within the province, which, it is thought, would equal the total of the latter figures. In the last four years, the increase in exports, according to returns from the express and railway companies, was 2,400 tons, the total amounting to 11,882 tons.

Strawberries in British Columbia

George Every-Clayton, Burnaby Lake

THE first question of interest to beginners in strawberry growing, is, "what variety shall I plant?" If you cannot determine from your neighbor's experience what variety is best suited for your soil and climate, the only thing is to experiment until you find out. Always remember, when selecting from catalogues, that this phrase might well be tacked on to the end of the glowing description of any strawberry, "If it happens to be suited to your soil and climate." I prefer the hill system of cultivation, rows at least three feet apart and plants sixteen inches in the row. Before planting, I cut about half of the roots off with a pair of shears, and all dead or faded-looking leaves. In planting, press the soil firmly round the plant. I use a small, wooden dibble, sixteen inches long, so that it serves for a measure for planting. All blossoms and runners should be cut, say, once a week, and the hoe and cultivator kept going all spring and summer. The weeds should be kept down in the fall. Picking them into a bucket is a good way.

No mulch is necessary in winter on the coast. Cultivate early in spring. Run the tool shallow and keep it away from the plants to avoid tearing up the small roots that lie near the surface. I pre-

fer to keep weeds down by picking them when fruiting time draws near. We lay down straw to keep the fruit clean. This is done when the blossom is about all out and the fruit partly set. About two tons of straw to an acre is applied.

PICKING

The pickers should not touch the fruit at all, but take it by the stem, and cut the stem about half an inch from the fruit with the thumb nail, and place in box. We provide our pickers with trays that hold six boxes. When these are full, the picker brings the tray up to the packing shed, or tent, and places the boxes on a table in front of the packer (usually the boss, or some responsible person) who looks them over and calls the picker's attention to any unripe, over-ripe, mashed, rotten or bird-pecked berries, that he may see. If carelessness continues, the picker's services are dispensed with. When a quantity of small and mis-shapen berries seem to justify it, they are picked into separate boxes, and sold as No. 2's.

MARKETING

If conditions are favorable, the man with only a few berries may dispose of them satisfactorily by retailing to private customers. There is, however, in my

opinion, only one way for the man with a quantity to sell them, and that is through a reliable commission man. Having once found him, stick to him, and leave the selling to him, devoting all your own energies to seeing that the fruit is well picked, carefully and attractively packed, and conveyed to your commission man's store with the least possible shaking and jarring. I venture to say that he will save you time, trouble, possibility of bad debts, and make his own commission into the bargain. Send him badly-picked, and carelessly-packed berries, and berries that have been driven over a rough road at ten miles an hour, and you will say that the commission man is no good.

As soon as the crop is off, we mow all the leaves off the plants and burn them and the straw right on the patch, and cultivate as usual. We usually take two or three crops off before plowing.

Growers of cranberries are asked to contribute articles for publication.

Readers of THE CANADIAN HORTICULTURIST in the Maritime Provinces, are requested to send articles on fruit, flower and vegetable culture for publication. Photographs also will be welcome.

Suggestions to the New Irrigator

A. E. Meighen, Irrigation Engineer, Kamloops, British Columbia

THE important part that water plays in promoting plant-growth is, in an indefinite and general way, appreciated by everyone. Of all the factors having a bearing on plant growth, water

obtained by grading. It is impossible to get the best results on a piece of land of uneven surface. Some portions of it will get too much water, and others too little. For furrow irrigation, the ideal

the tree rows, in which very small streams of water are run for a couple of days, supplied from a lateral along the high end of the lot. By this method the soil is evenly and thoroughly irrigated, leaving the land in the condition it would be after several days of light rain.

The streams entering the furrows from the lateral should be under control, and easily regulated. For this reason, instead of a dirt ditch, a square wooden flume should be made of one and one-quarter inch by twelve inch boards. On the side of this flume next to the orchard and just to clear the bottom, one and one-quarter inch holes are bored every two feet. Each of these holes furnishes the water to one furrow. Over the holes are nailed gates made of galvanized iron two and one-half inches long by two inches wide, the sides of which are turned over to form grooves. A hole one and one-quarter inches in diameter is cut in the gate and a slide of galvanized iron is made to fit in the grooves. By means of this slide, the supply to each furrow can be regulated to a nicety.

Irrigation under these conditions is a pleasure. A man can easily irrigate ten acres in two or three days with absolutely no waste of water.

QUANTITY OF WATER REQUIRED

The quantity of water required to produce the best crops is a matter in which no fixed standard can be made, depending, as it does, on climate, kinds of crops and character of soil. It is almost an invariable rule, however, that irriga-



A Level Stretch May Be Irrigated in This Manner

For orchard irrigating, the furrow system is used. See illustrations on front cover and on page 212.

is next in importance only to light and heat, but even in irrigated countries, the fact that results depend on the amount and times of application, is little understood.

Scientific irrigation is the application of water in such quantities, at such times and in such a manner that, with proper cultivation of the soil, the most favorable conditions for plant life are obtained. There are five factors which influence plant-growth—light, heat, water, soil-texture and plant food. In arid countries, the first two are generally bountifully supplied by nature. The other three the irrigator largely controls. When it is understood that the last two are greatly influenced by the knowledge and skill displayed by the irrigator in the application of water, it will be seen how important it is that an irrigator should study the best methods and have his land in such shape that he can apply these methods.

A settler coming from a non-irrigating country to take up land under an irrigation system would be wise to take certain precautions. He should, of course, ascertain that the water-rights of the system are what they are represented to be, that the water supply is ample, and the distributing system satisfactory.

In the selection of a lot, the main thing to consider, after soil, is the surface of the land, whether or not water can be evenly and easily distributed over it; if not, the proper slope must be

lot should have a gradual slope in one direction of from one to two and a half feet in the hundred, depending on the character of the soil.

BEST SYSTEMS FOR ORCHARDS

Having secured such a lot, the next thing to consider is the method to be adopted for irrigating. For fruit trees, the most satisfactory is the furrow system. This consists of running a number of plowed furrows (the number depending on the age of the trees) between



Irrigationists Visiting Head Gate of Grey Canal

At time of recent convention of Western Canada Irrigation Association

tors at first use far too much water, to the detriment of their crops and lands.

HOW OFTEN TO APPLY WATER

The number of times that water should be applied during a season again depends on climate, soil and crop. In the Kamloops District, fruit trees should not be irrigated oftener than two to three times, the last irrigation about August 1st.

It is not enough to merely apply water to the land, and think you have done your whole duty. Irrigation must be accompanied by constant and thorough cultivation of the soil. After each irrigation, before the soil has begun to bake and crack, but not so soon that it will turn up in lumps of mud, the furrows should be broken with a good two-horse cultivator, this to be followed in a day or so by a thorough cross cultivation. At

least every two weeks, oftener if possible, until the next irrigation, the soil should be stirred to a depth of three or four inches with harrows or a fine cultivator. The object of this cultivation is to keep the soil in a loose, fine condition, so that it will hold the largest possible amount of air and water without becoming heavy and also to conserve the moisture by reducing evaporation to the minimum, and to keep down weeds.

Growing Peaches in the Okanagan Valley

Clement Aitkins, Peachland

WE are still young in peach growing, but I expect to see the time when we will be famous for our fine peaches. Peach trees grow well with us, and the fruit is unsurpassed in flavor and color. On the occasion of the visit of the members of the Western Canada Irrigation Association last August, many expressions of surprise at seeing such fine fruit were heard.

We have such a fine climate for peach growing that we expect to have annual

of the top. This is important. If it is not done the trees will not maintain a strong and vigorous growth, and will not bear large crops and well matured fruit. When it is done, the trees will not split readily and they will live longer.

In the Niagara district of Ontario I had peach trees twenty-two years old. They had not been well handled throughout their life-time or they would have borne good crops up to thirty years old. I believe that trees will do that here. We

It is important also that the laterals bearing the fruit should be shortened at least one-third. This in conjunction with irrigation, cultivation and feeding, not only gives good strong trees, but it also aids in producing well colored fruit and it prevents to a great extent the spending of money on hand thinning of fruit. The bulk of the thinning of the fruit should be done with the pruning shears.

With skill and experience and sufficient capital to make the most of them, one can grow thirty boxes of peaches per tree. The usual yield is ten to thirty boxes per tree according to the experience of the grower, upon whom depends the success or failure of the venture.



Four Year Old Peach Tree in a Well Kept and Irrigated Orchard
Plantation of Mr. R. H. Agur, Summerland, B.C.

crops. The soil is a sandy loam, somewhat stony, and is most suitable for all kinds of stone fruits.

It is important that the peach trees should be pruned severely. Start them with low heads about fifteen or eighteen inches from the ground. Shorten-in the unusually long roots to a convenient length. Prune all broken and damaged roots before planting. Each year cut back about two-thirds of the new growth

have the soil and the climate, and some of us have the experience to prune the trees hard, to keep the heads down, and after a few years to head back by degreases the main branches, cutting them short off, and forming new leading branches. Where several new branches grow, cut out the weak ones, keeping only the strong and heading them back well at the next winter's pruning. Thus, new heads may be formed.

Canadian Raspberries

W. T. Macoun, C.E.F., Ottawa

Quite a number of good raspberries have originated in Canada, but time forbids mentioning them here. Descriptions of these will be found in the list to be published later. There is one red raspberry, however, that must be referred to, namely, the Herbert, which is rapidly making its mark.

Herbert (Whyte's No. 17) is a chance seedling originating with Mr. R. B. Whyte, Ottawa, Ont., in 1887; one of thirty seedlings, probably of Clarke; a very strong grower, hardy and very productive. The fruit is large to very large; obtusely conical, bright to rather deep red; drupes, medium size, not crumbling, moderately firm; sweet and subacid, sprightly, juicy and of good flavor; quality very good; season, begins a few days before Cuthbert. The best red raspberry tested at Ottawa. It has all the good points required in a berry for local market, being hardy, vigorous, productive, with fruit of large size, good color and of very good quality. If firm enough for distant shipment, it may displace Cuthbert. Two excellent Canadian black-caps are the Hilborn and Smith's Giant.

Fruit Growing in British Columbia and the Outlook

Thos. G. Earle, Lytton

IN THE beginning of my experience, of over forty years, with fruit growing in British Columbia, I was inexperienced and, in consequence, made the great mistake of having too many varieties. When an agent came along with a book of plates of fancy apples, such as the Alexander and Wolf River, I ordered some of them. Now, I have to top-graft them, as well as other varieties, as I find that they are not suited to the demand.

At this date, fruit-growing is down to a science. The person who is going to succeed in fruit-growing, requires only a very few choice varieties. The fancy red varieties find the readiest sale. Some choice varieties that do well in the east, such as the Baldwin, will not do here. The Baldwin is affected with what is termed the "Baldwin speck," or dry rot in specks. What will do well in one locality may not do well a few miles distant. The best way for the beginner is to carefully ascertain what variety will succeed in his locality.

WHAT TO PLANT

For commercial apples, one needs not over six varieties, and most of them red. For early summer, the Williams' Favorite is early, and a nice sweet red apple. Then the Duchess comes in for cooking. These will do for family use, or what is earlier, the Yellow Transparent. Then comes the Wealthy, a fine reddish showy apple that will keep until early winter. After this, the King, a large, fine apple, comes in. A splendid apple is the Spitzenburg. The Jonathan is one of the nicest dessert apples, and will keep fairly well. Wagener and Grime's Golden are very nice. Now, out of these and the Rome Beauty make a selection of not more than six varieties for commercial purposes. The Northern Spy is a very noted apple that does better in the east than here. As it is very long coming into bearing, I don't think they are as profitable as some others.

PICKING AND PACKING

When picking fruit, one should be very careful in seeing that the pickers do not pull the apples, pears, plums or cherries, off without the stems, as they will not keep as long. Care must be taken not to bruise the fruit. Nice fruit does not look well in rough boxes and will not sell as well. Use the nicest boxes or packages that there is to be had and it will pay. No bruised or scabby fruit should be packed as it will not keep. All peaches and pears should be wrapped and packed closely together, and the boxes or crates well filled, so that the fruit will not move in transportation.

Apples should remain on the trees until ripe. Pears are best picked on the green side and will ripen in the boxes. All apples and pears should be selected of uniform size for each box and without bruise or blemish. No apple or pear that falls to the ground should be sold as first-class fruit; but, if sold, they should be marked and sold for fruit that will not keep.

Apples should be packed in tiers and of uniform size. Some will have from three to six tiers, but a four-tier apple is the most in demand. Apples should fill the

would suppose that the C. P. R. would try and place our fruit in the Northwest promptly and properly, as we have there to compete with the growers of the United States. The duty on fruit is very light. They can grow and put it up here cheaper than we can. We have in this province as good soil and climate for fruit as there is in the world, also for vegetables and produce of all kinds. To make a success of fruit growing, we must have a fair chance of placing it on the markets of the northwest.

I wonder how we will come out when



One of the Many Beautiful Scenes in the Okanagan Valley

box closely and, before the lid is put on, they ought to be about one inch above the top of the box. When the lid is pressed and nailed down, they may bulge out in the middle. Pack closely, so that they will not rattle or bruise in moving the boxes. The variety and tiers with the grower's name and residence, must be plainly marked on the ends of each box or barrel to comply with the Fruit Marks Act. This is a fine thing, as, if any cheating is done, it can be easily shown who did it.

As fruit-growing has come down to a science, we must take pattern from the Californians, as they are very expert in boxing. We must be up-to-date if we are going to compete with them, as we surely have to do.

POOR TRANSPORTATION FACILITIES

We are badly handicapped in having only one main line of railroad. They charge a high rate and often side-track a car with perishable fruit for days. I sent last fall some apples by freight to Milestone, about 600 miles; they were twenty days in getting there, and were spoilt; but, of course, there was no redress. I fail to see what good the Railway Commission has done us as yet. One

the millions of trees that are being planted come into bearing, or how those that are paying exorbitant prices for all kinds of lands are coming out, especially those that are buying five or ten acres of land and have a family to support. I would suppose a family would want at least five acres more for a house, barn and a chicken house, also a cow or two, and a team. The owner has to pay also for water to irrigate his land and, in many localities, he is not certain of even that. I am not referring to those who have located at Peachland, or Summerland, and some other points, as they have money, and do not have to depend entirely upon the fruit or produce that they raise. There is a glorious future for this province, but it will take time to fully develop it. In order to make the fruit-growers prosperous, we must give them a fair show, and not deceive them with the idea that they can make money and prosper on five or ten acres of land, as so many of the speculators are doing. I have had many years of experience and I hope this article may do some good. I am well aware that it will not suit all, even if it is plain truth.

The General Care of Private Greenhouses*

W. J. Wilshire, Montreal

AT first glance it would seem a comparatively easy matter for any gardener of experience and intelligence, to write a practical and instructive essay on the care of private greenhouses. A little reflection, however, will soon convince anyone that such is by no means the case. It is not that there is a lack of material to work upon; on the contrary, there is far too much, for to touch upon all the different points, even in the briefest manner, would be out of the question in an article of this description. The difficulty is to know what to select and what to reject of the almost endless details, which, while trivial enough in themselves, often play an important point in successful greenhouse management.

Theoretically, the main points in greenhouse management, are the same under all conditions. But, if we attempted to carry them out in practice we should often meet with very indifferent results. The truth is, that in this, as in most things pertaining to horticulture, no rules exist which would give the same results in all cases. It it meant simply the cultivation of a lot of plants, or the gardener had himself alone to please, it would be a different matter. But, as in this case—when all is said and done—the main point is to please the owners, the gardener must use whatever methods he finds from experience are the most successful, paying little attention to arbitrary rules or preconceived ideas. While there are of course many other points to be considered, those given below will be sufficient for the purpose of this article. Stripped of all frills, they may be placed roughly as follows: A continuous and uninterrupted succession of bloom, effective arrangement, variety and cleanliness. It will, of course, be well understood that quality is of the utmost importance; but, as it would necessitate giving a lot of cultural directions, it will not be treated as a separate subject.

CONTINUOUS SUCCESSION OF BLOOM

In order to grow sufficient plants to maintain a continuous succession of bloom through six or eight months of the year, the skill of the gardener is taxed to the utmost limit. From the first to the last of the year, he has to be continually planning what to grow, and how best to grow it, what to force, or what to retard, and the best time to propagate this, that or the other thing, so that they will mature at the proper season. In fact, this point requires more

care and forethought on the part of the gardener than all the others combined.

There are certain parts of what may be called the "greenhouse season," notably the early spring months, when there is naturally a greater abundance of flowers

any time a good geranium than a poor orchid.

In purchasing or propagating any kind of stock, quality should be made the first consideration. It is also better to grow too many of each kind than too



A Beautiful Corner in a Private Conservatory

Greenhouse of Mr. R. B. Angus, Montreal—Mr. W. J. Wilshire, Gardener

than at others. These can, to a certain extent, be allowed to take care of themselves. The careful gardener will direct most of his attention to such plants as will tend to prolong the flowering season as much as possible, or give the greatest amount of flowers during the duller months of the year. Crops should follow one another without a break, and in sufficient quantity, not only for the embellishment of the conservatory, but for any extra decorations for which they may be required. People are not apt to consider time or season if they wish to make use of their greenhouses for any special purpose, and the gardener who is able to meet successfully sudden demands upon his stock, will often save his employer much annoyance, and himself humiliation.

Of the many plants worthy of cultivation for this purpose it is not necessary to speak, nor to suggest what to grow, or how they should be grown. Each must study his own conditions, requirements, and, it might be added, his capabilities. For while it not even remotely suggests that a man should not grow anything he pleases, it does more credit to his stubbornness than his good sense, if, after repeated failures, he persists in trying to grow things, which for this or any reason are beyond him. Better at

few. This not only allows a choice of the finest plants for stocking up, but it is very handy sometimes to be able to cover up a failure in one kind with the surplus plants of others. As before stated, particular attention should be given to plants that can be brought into flower late in the season. It is just as important that the place should be looking well the last day of the season as the first.

We are often told that people do not care anything about their greenhouses, once the snow is gone. But, depend upon it, they will be interested in them as long as they contain anything interesting. Keeping the flowers in a dreary, flowerless condition for five or six weeks at a stretch, is enough to cause the most enthusiastic to become indifferent. As this is the one thing of all others to prevent, if possible, things should be so managed that when the time arrives for the employer and his family to leave for the country, their chief regret will be in leaving their conservatory behind them.

EFFECTIVE ARRANGEMENT

Instead of making effective arrangement of the different plants an important point in greenhouse management, some really excellent plantmen seem to think that it is about the last thing to be considered. Having succeeded in raising a

*A portion of a paper read at the convention of the Canadian Horticultural Association at Niagara Falls, Ont., in August. It will be concluded in next issue.

quantity of plants, they think that is about all that is required of them, making no effort whatever to arrange them to show to the greatest advantage, and produce the finest general effect. Red, yellow, pink, blue, purple, and every other conceivable color, without so much as a piece of green to relieve them, are indiscriminately mixed, with sublime indifference as to the effect each has upon the other, or the whole has upon the eye of the visitor.

It may be argued that this matters little so long as those most immediately concerned are satisfied. Perhaps not. But it must not be forgotten that many people keep greenhouses quite as much for the pleasure they give to friends or visitors, as to themselves, and they are prone to rely more upon the opinions of others as to the merits of the place, than upon their own judgment. Many people who cannot tell one flower from another have the true artistic eye for color and effect. To such, a well arranged conservatory particularly appeals. They will, of course, admire any extra fine plants the house may contain, however badly arranged they may be, but they are usually more interested in the general appearance of the place. If the effect of the whole is striking and pleasing to the eye, they will carry the impression produced, long after the beauty of the most superb specimen has been forgotten.

Apart from this, the man who studies effective arrangement has a decided advantage over the one who does not, in that he can make use of a lot of material which to the other would be useless. Plants which are naturally of a loose and straggling habit are invaluable to a good decorator, while they would be practically worthless to the man who is forever trying to grow every plant into a formal specimen.

For the conservatory or show house, a set and formal style of decoration should be avoided, a loose, somewhat careless style being much to be preferred. Houses vary much in size, style, and in the readiness to which they lend themselves to artistic arrangement. Here, again, no hard and fast rules can be laid down as to the way this work should be done. Even if they could, it would hardly be advisable, for the one thing to avoid above all others, is a slavish imitation of another's style. Something can always be learned from every source, but the man who is content to be a mere imitator, will seldom get out of the rut. It is better to study originality, and instead of copying, make a point of improving upon the methods of others.

Most houses of whatever size or style contain a number of specimen palms and ferns. These can be arranged to form a

suitable background for the flowering material. Their positions seldom need to be changed, the operator relying upon such foliage or flowering plants as may be available, to make any necessary changes and to keep the house effective in appearance.

The features of the house should be changed as often as possible, to prevent it getting monotonous. If this work is carried out properly, a rearrangement of the whole house will seldom be necessary. Continually removing such plants as are past, or that have been in the house for some time, and replacing them with fresh ones, is all that will be required. If at any time no fresh material is at hand, changing the position of a few plants so as to alter the effect, will do equally well. It helps considerably to keep people interested in a place if they get to know that on no two consecutive days will it look exactly the same.

Many plants, such as cyclamens, primulas, calceolarias, and so forth, show to the best advantage when arranged in a mass. These had better be bunched in a separate house, where they will display their particular style of beauty to better advantage, than when mixed among ferns, palms, or large flowering plants. They will also last longer, and keep in better shape for use as table plants, or any decorative work demanding the use of small, well-formed specimen plants. Moreover there is another advantage to

a much better opinion of them if they come across something interesting in every house they inspect.

VARIETY

Apart from every other consideration, it will repay the gardener to introduce as much variety into his stock as possible. Nothing causes him to become stale, and lose interest in his work, so much as growing the same sort of things over and over again, and seeing the same old plants in the same old places year after year. To the true gardener, few things are more interesting than studying the development of a plant with which he is unfamiliar, watching for the first flowers of some new species or variety, or the unfolding of the petals of an orchid fresh from its native habitat.

Of course, it would not be advisable to grow just one or two plants of every possible variety. What is needed as much as anything is a change, and that as often as possible, consistent with the maintenance of good quality. Most places have, of necessity, to maintain a certain number of plants of a more or less permanent character. But change and variety can be obtained by occasionally substituting foliage for flowering plants, by revising the seed list, bulb list, hardy greenhouse shrubs and roses, through, many things grown annually from cuttings, fresh imported orchids, testing so-called novelties, exchanging stock with other gardeners, and many



An Effective Planting Near a Range of Private Greenhouses
Conservatories of Sir H. M. Pellatt, Toronto—Mr. T. McVittie, Gardener

be gained by doing this. It makes the whole place more attractive. Over-loading one house at the expense of all the others, at best is a bad practice. Most people, when on a visit to greenhouses, like to see the "whole show," and form

other ways which will suggest themselves.

CLEANLINESS

Although cleanliness has been placed last on the list it is by no means the least important point to be considered.

Important as it is, however, it is not advisable to over-do it. Cleanliness in a greenhouse is an excellent thing up to a certain point, but if it is carried to the extreme, it really becomes a nuisance. Let the owners once begin to feel that it is considered of so much importance, that they are not supposed to pluck a few flowers, remove a plant, or walk over the floors for fear of making a mess, and the place becomes more a source of irritation than enjoyment. This does not mean that the houses should be kept in any thing approaching a dirty condition. A private place should be kept fit for inspection during all reasonable hours, but to do this it is not necessary to be everlastingly scrubbing and scouring, and wasting time and labor that could be put to better purposes. A little neglect in respect to cleanliness will do no great harm, provided the neglected things are the least conspicuous. Pots, pans, boxes, and many other things indispensable to gardening operations, possess no particular beauty of their own, but it would often save a good deal of labor, as well as improve the appearance of the house, if they were hidden from sight

by well-arranged flowers or foliage, instead of being exposed to full view in the manner frequently seen. A good plan is to do all cleaning work a little at a time and in such a way as to cause the least confusion. A bit of wood-work, a floor, a few plants here or pots there, taken in hand, as they require it, will usually keep the place clean and tidy enough for all ordinary purposes.

In the conservatory or show house, all watering and cleaning operations should be rushed through as early in the day as possible. All dead leaves and flowers should be picked off, and any plants that are passed, replaced with fresh ones, leaving the house in such a condition that under ordinary circumstances no further work will be necessary, except attending to ventilation, temperature and so forth. All pots and plants should be thoroughly clean and free from vermin before being placed in a conservatory attached to the dwelling house, where the ordinary methods of cleaning are impracticable. If this rule is strictly adhered to, little in the way of further cleaning there will be necessary for weeks at a time.

an annual display of gorgeous flowers that delight the eye. No longer in the experimental stage is the growing of hardy cacti for permanent outdoor beds, as many of our parks have tried hardy cacti to beautify barren spots that had seemed hopeless problems previous to that time.

On some gravelly side hill, with a southern exposure, where shrubs and grass would be burnt up long before they could establish themselves, the cacti find their natural conditions in perfection. Here they thrive and grow, bloom and seed, and when cold weather in the fall warns them of coming frosts, they make a graceful retreat, and go into winter retirement, becoming so shrunken and reduced as to seem about ready to be dug up and thrown on the rubbish pile. The fresh green color changes to a sunburnt looking purple, and the abundant store of juices that keep the tough skin filled out plump and smooth all summer seem to have been all used up, leaving the cactus in its dormant state and ready to take its winter rest.

In this way nature's plan has been followed, and its results are sure to be an abundance of bloom the next season, the safety of the plants in the coldest weather, and a chance for the gardener to watch a rapid and wonderful change as the warm weather of spring awakens the sleeping cacti to another season of life, beauty and usefulness in giving an otherwise useless spot of ground a carpet of green as well as a liberal display of unexpectedly handsome flowers.

As soon as this phase of cactus growing becomes better known, there is likely to be a great demand for the hardy varieties, and no fear need be felt of their ability to take care of themselves, as the writer has seen the little *Mamillaria Montana* and *Opuntia Missouriensis* growing and doing well in the Canadian Northwest, where the temperature varies from 100 degrees in the shade in summer to 40 degrees below zero in winter. There they revive each spring after a long hard winter and bloom as freely as if growing 4,000 miles farther south. It is mostly *Opuntias* in several sorts that are used in the hardy beds. Their flowers are for the most part yellow, with a few showing a red or pink centre, shading to yellow on the outer edges.

If you did not prepare an earth mulch for the lawn, as recommended in previous issues, apply a moderate dressing of well-rotted barn-yard manure, and spread it evenly.

If you have no photographs of your own garden or lawn and know where there are some, kindly send the name of the owner to THE CANADIAN HORTICULTURIST, or ask him to forward the photographs to us.

Hardy Cacti

J. H. Callander, Peterboro, Ontario

THE generally accepted opinion regarding cacti, seems to be that they are tender plants from the tropics, and must be very carefully protected from frost. While this is true of some varieties, the majority of them will stand much more cold than is supposed, as, while they are natives of the hot countries, it is the rocky, mountainous sections that they inhabit, and that, too, quite often almost to the snow line. Necessarily, they are subjected to both extremes of heat and cold, and without injury to them in the least. It is the varieties that are found on the hot, level plains that are tender when exposed to the climate of the North. The tender sorts are the cerei, which are not found north of a line running across the upper edge of Mexico, and extending upwards into Arizona, crossing the Rockies at about Death Valley in California, and from thence to San Diego on the coast. Up to a short time ago the cactus fancier had no knowledge of which of his treasured cacti were hardy, and which required shelter from the frost, so kept all in the conservatory window, or at least carried them into the cellar for winter if bedded out during the summer. They would gladly have known the hardy from the tender, but did not care to subject their valued collection to the test of exposing them to an unprotected winter out of doors, in order to gain the desired

knowledge, so had to care for all in the same old way.

It has lately been discovered that though cacti have not been found growing wild in the eastern states or Canada, there are a number of really good varieties that will luxuriate anywhere in the United States and most of Canada, growing and blooming in the most exposed situations and asking no better



Echinopsis Eyriesii

spot to take root in than some gravelly, stony knoll, where no other vegetation could exist, much less revel in, and yield

Lawn and Garden Hints for October

IMPORTANT work this month in the outdoor garden is the planting of bulbs for spring flowering. They should all be in the ground before the month closes. In preparing the beds they should be thoroughly spaded and enriched, and made a little higher than the surrounding surface so that the water will readily drain off. Plant hyacinths, narcissi and tulips so that the top of the bulb will be about two or three inches below the surface of the soil. Crocus, scilla, chinodoxa and snowdrops may be planted about one-half of that depth. After planting, firm the soil with a spade.

Dig canna roots as soon as they have been blackened by frost but before the frost touches their roots. Store the roots for a week or two in a shed safe from rain and frost, then remove to a warm room or cellar where the temperature ranges from forty to fifty degrees.

Dig the dahlia roots, free them of top growth and adhering soil, dry in an airy but shady place, then store them in boxes of sand in a temperature just high enough to prevent freezing in the coldest season. Be sure to label the clusters when they are taken up.

Treat roots of four-o'-clocks as recommended for dahlias. Keep in a cool, moist cellar.

Lift gladiolus corms. Partially dry them before storing for the winter. Pack them in sawdust or sifted earth, and

tions. They should first be ripened or hardened off. Place them in a shed or out-building until November and gradually withhold the amount of water without allowing the soil to become dry.

Before consigning oleanders, pot-roses and fuchsias to their winter quar-

tem is essential, the earlier the bulbs are planted, the better. After planting place the pots in a dark place for six weeks or more. The pots must be well filled with roots before bringing them to the light. This is the most important feature in the successful culture of bulbs in the house.



Horticultural Exhibition Held by Owen Sound Horticultural Society in August

The persons in the illustration, from left to right, are Mr. J. Y. Jackson, Secretary-Treasurer; Mr. Wm. Hunt, O.A.C., Guelph, Judge; Mr. W. T. Lee, President and Miss L. A. Harrison, Assistant Secretary.

ters they will be benefitted by hardening off as recommended for hydrangeas. They will not stand quite as severe treatment as the latter.

Store century plants in a dry room or light cellar where the temperature is about fifty degrees. Give them very little water during the winter.

If you do not divide the old perennial plants or buy new ones for transplanting this fall, there is still time. Better do it now.

Prepare for the garden next spring. Manure and spade the beds for flowers, so that the frost may have a chance to pulverize the soil and to kill insect larvae before spring.

Rake and clean the garden. Clean and put away the garden tools when finished with them. Rake the leaves off the lawn and put them on the compost heap. Secure a store of potting soil for use this winter. Have on hand a supply of spruce boughs, straw or strawy manure for protecting the newly-planted bulb beds and any plants that may need it.

If you did not prepare an earth mulch for the lawn, as recommended in previous issues, apply a moderate dressing of well-rotted barn-yard manure, and spread it evenly.

FLOWERS INDOORS

Bulbs may be planted in pots any time during fall but the best results are had by planting them not later than the middle of October. As a good root sys-

tem is essential, the earlier the bulbs are planted, the better. After planting place the pots in a dark place for six weeks or more. The pots must be well filled with roots before bringing them to the light. This is the most important feature in the successful culture of bulbs in the house.

tem is essential, the earlier the bulbs are planted, the better. After planting place the pots in a dark place for six weeks or more. The pots must be well filled with roots before bringing them to the light. This is the most important feature in the successful culture of bulbs in the house.

Grow some Chinese sacred lily bulbs in stones and water. Paper white narcissus may be grown likewise. Select strong bulbs for best results. A pleasing addition to the winter window garden are hyacinths in glasses. A special vessel, known as a "hyacinth glass," may be used. In it, place the bulbs with a little soft water and some charcoal. Have the water in contact with the base of the bulbs, but no higher. Place them in a dark, cool place until well rooted, when they may be brought into the light. Change the water occasionally and do not let it freeze.

Some of your ferns and palms will require re-potting. Take them out of the old pots, clean the roots by removing a part of the earth and replace in fresh soil in pots of the same size. If the plants are root-bound, it may be necessary to put them into larger sized pots.

Bring the old geranium plants into the house before being frozen. Prune them back severely. Plant them in boxes or pots in sand. Plant them a little deeper than they stood outside. Give sufficient water to moisten all the sand. Stand the boxes or pots in the window and keep the sand moderately moist but not really wet. Leave the plants in the sand until the young growth or shoots have



Cannas Growing Around a Bay Window
Residence of Mr. J. T. Rose, Brantford, Ont.

store in a moderately dry room. Treat corms of tigridias similarly.

Renew the old lily clumps by dividing them and re-planting this fall. When the ground freezes mulch them with straw or spruce boughs.

If you have any half-hardy pot hydrangeas, do not hurry them off on the first sign of frost into unsuitable condi-

made three or four small leaves at the joints of the old stems. If the young roots have well started, each plant may be potted singly in a mixture of half sand and half potting soil. Use three-inch pots. The time for this change usually comes late in January or early in February. Two months after, re-pot in good potting soil in pots two sizes larger.

Another method of treating old geranium plants, recommended by Mr. Wm. Hunt, of the Ontario Agricultural College, is to put the boxes or pots with the plants treated as already described, in the cellar or basement at once instead of growing them on. If this method is adopted, the sand must be kept much drier as the plants must not be allowed to start into growth until February or March. When that time comes, pot them in sand and place them in the window as recommended for the other method.

FALL CARE OF VEGETABLES

When the tops of asparagus are sufficiently dried so that they can be broken down by a rake, gather and burn them. Give the surface of the bed a top-dressing of well-rotted stable manure which should be worked into the soil this fall. Manure left on the surface until spring will prevent early growth.

Take up some parsley roots from the garden and grow them in a box or pot in a more or less shady place, not too warm. This will give a winter supply.

In some localities, radish and lettuce may be had for Christmas by sowing the seed in a mild hot bed. Protect them against heavy frosts or freezing.

Bank up the winter celery. Most of it should be stored by the end of the month.

Pull and store cabbage and dig beets, carrots, parsnips and such crops, and at once put them in the cellar. Some parsnips and salsify may be left in the ground for digging in the spring.

The old rhubarb patch may be renewed by digging the roots, dividing them and starting a new plantation. Some roots should be left on the surface of the ground or placed in a cold frame until well frozen. Later, place these in the cellar on the floor or in a barrel where they will produce stalks for winter use.

Start a mushroom bed this fall. Look up back issues of THE CANADIAN HORTICULTURIST for information. Another article will appear in an early issue.

Clean up the vegetable garden and burn all rubbish. Apply a dressing of manure and dig or plow it in. Rearrange the location of the crops for next year. A rotation of crops always gives best results. Grow shallow-rooted plants next year where deep-rooted ones were. This is only one of the factors to be considered. An article on this subject will be published soon.

Forcing Tomatoes*

W. S. Blair, Macdonald College

IT IS doubtful whether tomato forcing as a distinct business can be profitably conducted in Canada. They can often be profitably worked in, however, as a spring crop, after some of the commonly grown greenhouse crops are past their best. It was with this thought in mind that work with tomatoes under glass has been taken up at the Macdonald College. For much of the data presented in this paper, I am indebted to my former assistant, Prof. V. R. Gardner, now horticulturist of the Maine State College, and especially to our efficient greenhouse manager, Mr. A. H. Walker.

The winter forcing of tomatoes is much more difficult than the spring forcing. The tomato loves light and heat and to ripen its fruit during the dark days of midwinter, when sunlight is not only scarce but not strong enough to clear the glass of its heavy coating of frost, is no easy proposition. For this reason it is doubtful to what extent winter forcing can be carried on. This point we aim to work out and experiments to that end are now in progress. Our first planting was made into permanent beds in August, hoping to have our fruit well formed by December, depending largely upon heat alone for ripening. This phase of the question, however, is not the purpose of this paper, and therefore the spring forcing problem and how it can be worked to follow other crops is what I wish especially to deal with.

Our houses are of the King construction, twenty-one and one-half feet span, seven feet to the gutter. The plants should have four and one-half to five feet of head room, at least; therefore, the crop cannot be worked into some low houses profitably. Our houses run east and west. We have a four-span house. These houses are divided by a glass partition, and a walk runs cross-wise of the house, with glass partitions at each side. We have in all four thirty-eight feet and four fifty-eight feet houses each under control. Briefly our aim is to develop crops on a commercial scale in these houses, and at the same time work out problems similar to the one under discussion.

The soil used for tomatoes was made up of a medium light loam sod, piled in summer, into which one-quarter its bulk of stable manure was put, and the whole cut down and mixed before putting into the benches. The soil in the benches was six inches deep.

STARTING THE PLANTS

The plants for house No. one were started from seed sown September 16, into flats. These were pricked off into three and one-half inch pots three weeks later, and carried in these pots to November 22, or nine weeks, when they were set into the permanent bed, being about twelve inches high at that time.

The plants for house No. two were started December 15, in flats, and pricked off a month later into three and one-half inch pots, and on February 20 were again shifted to five-inch pots, and set into benches March 12. The plants at

that time were eighteen inches high. It will be seen that these plants were carried three months before benching. It is safe to say, therefore, that the period between sowing the seed and pricking off will be from three to four weeks. The plants can then be carried in three and one-half inch pots from four to five weeks, but if a longer period is required a shift to a five-inch pot is necessary in order to keep the plant growing and healthy. It is also well to bear in mind that while it is possible to carry a plant in a three and one-half inch pot during the early part of the winter, yet owing to a much more rapid growth towards spring, this would be impossible without stunting the plant. In no case is it advisable to carry the plants longer than three months before benching.

THE FRUITING PERIOD

Plants set in benches in No. one house on November 22, gave their first ripe fruit the middle of March. The time required for the plants to come into fruiting was 113 days. These continued in fruit until the middle of May, or seventy-one days. Those set in benches in No. two house on March 12, gave their first fruit on May 12, or in sixty-one days, and continued in fruit till the end of July, a period of seventy-seven days. It will be seen that the plants occupied the benches in No. one house about fifty-two days longer than those in No. two house, before coming into fruiting. The fruiting period was of about the same duration in both houses. Allowing, therefore, that the plants set in house No. one

*Portion of a paper read at the convention of the Canadian Horticultural Association held at Niagara Falls, Ont., in August. It will be continued in next issue.

could have been carried two weeks longer by shifting into a five-inch pot, it still would have been necessary to carry these plants five weeks longer in benches in order to get ripe fruit during March and April than to secure fruit in house No. two during May and June. The following table will assist somewhat in making this point clear:

HOUSE	SEED SOWN	SET INTO 3½ IN. POTS	SET INTO 5 IN. POTS	SET INTO BENCHES	FIRST FRUIT RIPE	END OF FRUITING PERIOD
No. 1	Sept. 15	Oct. 8		Nov. 22	Mar. 15	May 25
No. 2	Dec. 15	Jan. 15	Feb. 20	Mar. 12	May 12	July 29

DISTANCE APART

The plants in house No. one were set diagonally in rows twelve inches apart, and fourteen inches apart in the rows. This would bring the plants about fourteen inches apart each way. House No. two was set diagonally in rows fifteen inches apart and twenty-two inches apart in the row, bringing the plants about eighteen inches apart each way, which distance is the one generally recommended.

THE YIELD

The yield of ripe fruit from these houses and the cash returns for fruit sold for each of the two weeks is as follows:

HOUSE NO. 1	NO. OF POUNDS	VALUE OF FRUIT SOLD	AVERAGE PER POUND
March 15 to April 1	81½	\$19.15	23.49 cents
April 1 to April 15	193¾	\$49.93	25.31 "
April 15 to May 1	248¼	\$53.44	21.55 "
May 1 to May 15	59¼	\$14.05	23.71 "
May 15 to May 25	59½	\$13.15	22.10 "
HOUSE NO. 2			
May 12 to June 1	129½	\$25.75	19.84 "
June 1 to June 15	205½	\$31.03	15.10 "
June 15 to July 1	305¼	\$50.22	16.45 "
July 1 to July 15	196½	\$32.78	16.68 "
July 15 to July 29	187½	\$23.55	12.56 "

Average price per pound for house No. 1—23 cents

" " " No. 2—16 cents

The following table gives the area in plants and the average yield per plant and per square foot:

HOUSE	BENCH AREA	FRUIT lbs.	AVERAGE PER PLANT lbs.	AVERAGE PER SQ. FT. lbs.	AVERAGE PRICE PER LB.
No. 1	220 square feet	650¼	3.20	2.95	23 cents
No. 2	384 square feet	1024½	5.28	2.67	16 cents

DIFFERENT PARTS OF THE HOUSE

The plants in house No. one occupied the central part of the house, and were on a raised bench. In house No. two a raised bench, taking three rows of plants, extended along the south, west, and north side. The south side bench is next to a glass partition, the west and north benches extend along the outer

wall. The bench in the central part of the house is wide enough to take in seven rows of plants. The sides are solid and only ten inches high. This bench is supplied with good drainage material at the bottom. The same depth of soil was used in this as in the other benches used. The table in the next column gives the average yield of fruit per plant from rows

located at different positions in this house.

Harvesting Potatoes

H. A. Blunden, Sarnia, Ont.

Potato harvesting operations are governed entirely by what the crop is intended for—whether for early or late market. For early market, the potatoes should be dug, as soon as they are a good size, with a four-tined potato fork, or one of the well-known potato diggers. No more should be dug at a time than can be safely marketed, at the latest, the following day. There is no vegetable that will deteriorate in quality and reduce in price so quickly as an early pota-

or barrels, holding from five to ten bushels each, nailing on a cover so as not to press on the potatoes. Place the boxes in rows on an elevated piece of ground, and cover them on top and sides with a good layer of dry straw, followed by about six inches of earth. Before the severe frosts of winter set in, cover again with stable manure. This last operation will have to be done according to the grower's own judgment. Too much manure might injure the potatoes by heating.

	LOCATION	Av'ge Yield per plant
SOUTH		
Row 1	Next to glass partition	55¼ ozs
" 2	Centre row	71 " "
" 3	Next to walk	89 " "
WEST		
Row 4	Next to outer wall	71¼ ozs.
" 5	Centre row	83¼ " "
" 6	Next to walk	100¼ " "
NORTH		
Row 7	Next to outer wall	49½ ozs.
" 8	Centre row	85 " "
" 9	Next to walk	97½ " "
CENTRE		
Row 10	Next to south walk	101¼ ozs.
" 11	Second row to south walk	88¼ " "
" 12	Third row to south walk	87 " "
" 13	Central row	90 " "
" 14	Third row to north walk	78 " "
" 15	Second row to north walk	90¼ " "
" 16	Next to north walk	98¼ " "

The raised benches in this house gave an average yield per plant of 78 ounces and the centre bench an average of 90 ounces per plant. These two benches came into fruiting about the same time and the quantity of fruit picked to July averaged approximately the same per plant on the ground bench as on the raised bench, but the plants continued fruiting longer on the centre bench, due, no doubt, to having more head room than those on the side benches.

About Ginseng

J. E. Janelle, Caughnawaga, Que.

There is a great demand for dry ginseng, and it is almost universally used by Asiatics. It is claimed by American consuls in China that that country alone would import \$30,000,000 worth of ginseng roots a year, if she could get it. All Chinamen use it, either as a tea or ground into powder, and mixed with their food, the same as we do with pepper.

This plant and the proper method of its culture, has been kept a secret by many interested growers and "wild root diggers"; but to-day large growers sell seeds and plants to intending beginners, and give them a culturist guide with every sale. These have only to follow the instructions contained in this booklet if they want to succeed.

Tell the story of your success in gardening to the readers of THE CANADIAN HORTICULTURIST by contributing a letter for publication.

STORING

In storing potatoes whether for family use, future market, or seed, the grower is entirely governed by circumstances. The handiest method is by putting in bins in a dry, cool cellar, before severe frosts set in. If cellar room is not available, the best of all tried methods is to put the potatoes in light, wooden boxes

Opportunities for Market Gardening in British Columbia

By a British Columbian

IT IS only during the past few years that market gardening has been conducted by the white population in British Columbia. Previously it has been controlled by Chinamen, who sold their produce at so low a figure that it was considered unprofitable for others to engage in the business. Since the \$500 head tax on Chinamen has been in operation, however, numerous enterprising whites have entered the arena and developed the business to such an extent that not only have they supplied the home market, but they are building up an ex-

tion owing to the large amount of sunshine and practically no frost or snow in the winter. Many gardeners make a specialty of supplying the out-of-season trade with greenhouse lettuce and tomatoes. Others are contemplating forcing rhubarb in dark sheds, cauliflower and kindred vegetables in cold and hot frames. As the winter is so mild, it is not necessary to have such substantially constructed glass houses as it is in the east, or to consume so much fuel and the possibilities in this direction are unlimited.



A Large Market Garden in British Columbia—Cabbages Pulled and Piled

Vegetables may be grown successfully in all the valleys of the province and on Vancouver Island, a particularly favored district. The field illustrated is near Armstrong in the Okanagan Valley.

tensive export trade for early vegetables to that portion of British Columbia which lies east of the mountains, and to the provinces of Alberta, Saskatchewan and Manitoba. In these provinces, where the rigorous winter forbids the cultivation of the soil for five or six months in the year, there is an inexhaustible market for our products.

By a beginner contemplating entering the business, a great many things must first be taken into consideration. If it is intended to cater to a local market, it is important that he must locate near a large city. On the other hand, if the intention is to supply the eastern market, then it is a question of climatic conditions which will enable him to furnish the market with vegetables for the out-of-season trade.

The southern portion of Vancouver Island is probably the most favored sec-

All the vegetables of the temperate zone are grown to their fullest development, as in the south of England. The writer last year secured ten bushels of thoroughly ripe tomatoes from twenty-four plants. The method of cultivation was as follows: In the fall the soil was prepared by trenching and working in thoroughly rotted stable manure into the sub-soil. This was left in a rough condition till spring, when the surface soil was incorporated with well-prepared manure, and made as rich as possible. The plants were secured from a local nurseryman, and permitted to develop until they had attained a height of nearly four feet, when they were severely pruned of side shoots, merely leaving three or four bare stalks which were trained to stakes driven into the ground about six inches asunder. The plants required (or received) no further atten-

tion, with the exception of an occasional watering until the fruit was about two-thirds grown, when most of the new leaves were partially cut away to admit all the sunshine possible to develop and ripen the fruit. This year the single stem plan has been followed out with the result that ripe tomatoes were gathered on the 20th of August.

If these results can be accomplished by an amateur, surely a person who understands the business should be able to do at least as well. There is no reason why tomatoes should not be ripened in the open during the latter part of July, by potting in five inch pots, and keeping in a cool frame until the roots begin to fill the pots, and fruit to set upon the vines, before transplanting outdoors. Other growers have had success in different lines; some making a specialty of raising brussels sprouts and savoy cabbage during December, borecole in February, and green onions, etc., to meet the early spring demand.

There is no doubt that the future prosperity of the British Columbia market gardener depends on his ability to supply the needs of the great northwest. Enthusiasts look forward to the time when this favored section will be known as the California of Canada.

Subsoiling gives best results when performed in the autumn.

It was erroneously stated in the September issue of THE CANADIAN HORTICULTURIST, that the ginseng garden illustrated on page 190, is the establishment of Mr. J. E. Janelle, Caughnawaga, Que. The cut was published to show readers how a lattice shade is built. It illustrates a garden in Missouri.

Through an error in printing, Mr. George Syme, Jr., the author of the article on "Growing Cauliflowers for Market," which appeared in the September issue, was made to say, "when cauliflowers begin to form, they should be well watered and tied....". Mr. Syme originally wrote *watched*, instead of *watered*.

Celery should be harvested about November 1. Store in the cellar by placing the stalks upright in rows, with the roots in sand. The rows may be as close as the plants will stand. Water every week. I have tried trenching in the field, the plants being covered for winter with earth and straw, leaving vent holes at the ends for the entrance of air; but that method draws dampness and is not so successful as the cellar.—T. W. Stephens, Aurora, Ont.

QUESTION AND ANSWER DEPARTMENT

White Black Raspberry

We have discovered a berry growing wild in our garden which we believe to be of a new variety, but would like to know if others of its kind are known. It seems to combine the qualities of the black and white raspberry, the fruit being of a light brownish shade but having the flavor and shape of the black raspberry. It is also like the latter in growth, foliage and general characteristic, except that the stems are somewhat lighter in shade. The bush is very hardy and a fast grower, spreading rapidly. The fruit is greatly liked here for canning and preserving, and as the bush bears well, it is quite profitable. I am sending a sample of the fruit and a small branch.—B. W. S., Ontario Co., Ont.

The brownish shade of color in evidence on the fruit is entirely new to me. I know of no varieties which even approximate this color. I have seen a yellow unnamed sport of the black raspberry, but it would seem to be entirely distinct from the one under discussion. A variety of this color could hardly become of commercial importance, although judging from your correspondent's description of the bush and fruit it might be a valuable novelty.—J. W. Crow, O. A. C., Guelph.

Occasionally there is an albino form of the black cap found in the wild condition and this is one of them. From time to time these albino forms have been introduced to cultivation under names, but have not been commercially valuable. Some of the names which they have received have been American White Cap, Haskell's Yellow, Yellow Pearl and Golden Cap. The flavor is usually inferior to the black cap. They vary from white to golden yellow and often have a brownish tinge which makes them unattractive for market.—W. T. Macoun, C. E. F., Ottawa.

Pruning Hedges

Would you advise me as to the best time for clipping spruce and cedar hedges? They have been planted about two years. I want to clip them to a point in the centre as I think it would be better in the snow than a flat top. Can you tell me how to set about it. I want to find also the size of a piece of ground for sowing grass seed. How would I get it?—B. S., Island of Orleans, Que.

Spruce and cedar hedges may be pruned either in spring or fall, but spring is the customary time. They should be trimmed the second year after they are set, or sooner, although not very closely until they reach the desired or permanent height. If the plants are allowed to grow for a year or two without trimming, they lose their lower

leaves and become open and straggly. Prune them each year but never back of the growing twigs. These trees have no dormant buds the same as deciduous trees, hence if they are cut back to where the leaves disappear, no new growth will be thrown out. If you propose trimming to a point in the centre, it would not be well to produce that form altogether the first time of shearing. Plan to reach it in the course of two or three years, or even more, pruning each year more and more in accord with it.

You will find directions for measuring ground on page 146 of the July issue of THE CANADIAN HORTICULTURIST.

Elephant Ear Plant

Please tell me if I could lift an elephant ear caladium and keep it in the house during winter as a winter plant?—R. B., Waterloo Co., Ont.

The elephant ear plant (*Caladium esculentum*) being a bulbous plant, does not lift very well in the fall. By lifting it carefully, it might be possible to grow it indoors for a few weeks, but they are seldom a success when lifted. Keep the plants during winter in almost dry sand or soil in a temperature of about fifty degrees. A wet, cold cellar does not suit them. A moderately dry place is best. They should be dug immediately after the leaves are frosted and before ground freezes.—Wm. Hunt, O. A. C., Guelph.

Trouble with Elm Tree

On one side of a very large elm tree the bark is loose and coming off. Could one of your tree experts tell me the cause, also what he would advise to prevent further damage? It is a very fine tree in centre of lawn and I do not want to lose it.—F. M. G., Elgin Co., Ont.

It is not possible to say definitely what is the matter with the elm tree without seeing it and learning what the exact conditions are under which it is growing. In most cases where shade trees die on the side of the trunk as described, the injury is at the root. If the roots on that side of the tree are dead the wood of the tree is likely to die on that side. By examining the roots, it can be learned whether it is at the root where the trouble is in this case. By removing the dead bark, scraping the wound back to living tissue and keeping the injured part covered with white lead paint, the tree may in time heal over. If it can be discovered what caused the death of roots, further spread of the trouble might be prevented.—W. T. Macoun, C. E. F., Ottawa.

Treatment of Tuberose

How is a tuberose treated after flowering?—A. S., Wentworth Co., Ont.

Tuberose are of very little use to flower the second year, especially if they have been planted out. If grown in a pot, bring in before frost and keep in the soil in a temperature of 45 degrees. They are seldom successful the second year.—Wm. Hunt, O.A.C., Guelph.

Water Hyacinth

How is a water hyacinth kept over winter?—A. S., Wentworth Co., Ont.

A water hyacinth will keep best in a cool, moist cellar, or if planted out of doors, it should be covered early in November in a foot or 18 inches of leaves or long manure, and some boards or a barrel put over to keep out the moisture.

Fuchsias in Winter

Can young fuchsias be kept growing all winter or is it best to put them down cellar? I would like to make show plants.—B. K., Waterloo Co., Ont.

Young fuchsia plants, if in good growing condition now, can be grown on for a while, but they should have a period of partial rest late in winter so as to give them a good start in Spring. A cool cellar with a temperature of forty to fifty degrees, suits the fuchsia when resting in winter. Bring the plants into the house before frost. Keep the soil barely moist when plants are resting.—Wm. Hunt, O.A.C., Guelph.

Take an interest in our question and answer department. It will help you.

Clean up the orchard before the snow flies.

All tender and half-hardy plants should be mulched. Even hardy plants are benefitted by some protection.

When your house bulbs are in full bloom have a photograph taken of them, and send it to THE CANADIAN HORTICULTURIST.

The rudbeckia or golden glow is an excellent perennial for the background in the border or to hide an unsightly corner, but it should not be allowed to crowd out other things. Do not have too much of it in the garden. Divide the roots this fall. Use what is necessary elsewhere and throw the rest away.

The Canadian Horticulturist

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FREED GROWERS' ASSOCIATIONS AND OF THE ONT-
ARIO VEGETABLE GROWERS' ASSOCIATION

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CIRCULATION STATEMENT

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Circulation Statement

January, 1907.....	4,947	January, 1908.....	7,650
February, 1907.....	5,520	February, 1908.....	7,824
March, 1907.....	6,380	March, 1908.....	8,056
April, 1907.....	6,460	April, 1908.....	8,250
May, 1907.....	6,620	May, 1908.....	8,573
June, 1907.....	6,780	June, 1908.....	8,840
July, 1907.....	6,920	July, 1908.....	9,015
August, 1907.....	6,880	August, 1908.....	9,070
September, 1907.....	7,080	September, 1908.....	9,121
October, 1907.....	7,210		
November, 1907.....	7,257		
December, 1907.....	7,500		

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Average each issue in 1907, 6,627

Sworn detailed statements will be mailed upon application.

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We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words "I saw your ad. in The Canadian Horticulturist." Complaints should be sent to us as soon as possible after reason for dissatisfaction has been found.

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EDITORIAL

BRITISH COLUMBIA

The comparatively new fruit growing province of British Columbia can teach eastern growers many pointers on growing and selling fruit. This fact is recognized not only by enthusiasts in that province but also by eastern growers who have visited British Columbia. Highest honors have been taken by British Columbia fruit wherever it has been shown in competition. The growers have adopted at the outset modern practices in growing and modern methods in marketing. They have taken advantage of all the experiences of California and other Western States and of the older fruit growing provinces and are applying them to local conditions and improving upon them. It might be said almost that they have started at the top of the ladder. With this advantage combined with the fact that nature has richly endowed the province with soil and climate that scarcely can be duplicated elsewhere in the world, the growers of British Columbia are fortunate.

It would be folly to imagine that mistakes have not been made and will not be made. Many persons have gone into the business without any knowledge of the principles and the practice of fruit culture. In attempting to apply up-to-date methods without a thorough knowledge of the simpler and just as necessary minor practices, some have been and more are apt to be disappointed. There is opportunity for educational work on the part of the older growers and of the Government. Many persons also have bought land, through misrepresentation on the part of fraudulent land companies (many of them are not in this class), that is little or no value for anything. In spite of these things, British Columbia is becoming famous for her fruits. Eastern growers will have to keep moving to hold their own.

SOME GRAFTING METHODS

In these columns many references have been made to the practices of agents of certain American nursery firms. Recently our attention was drawn to a troop of agents, operating around Aylmer and St. Thomas, Ontario, who claim to be connected with a Michigan firm, which we fail to trace in the National Nurseryman's Directory. They are offering all kinds of absurd inducements, which include a four-year guarantee and a verbal agreement to trim the trees every year for four years. They are approaching farmers with bottles of prepared fruit, and also a bunch of root-grafts, which they use to demonstrate the inferior practices of the Canadian nurserymen. If they drop across a farmer who knows nothing about root grafting, (and there are many of them), they try to convince him, that they have a method in Michigan, of grafting apple trees and other stock, that is known only to themselves, and which cannot fail to result in strong thrifty trees, which will grow ahead of any stock, propagated under Canadian systems.

Canadian nurserymen, who propagate their apple trees by grafting, use exactly the same methods as these Yankee people, only perhaps it is done a little bit better. It may not be amiss to point out to our readers, who do not know, the method followed by Canadian concerns. The strongest of the young stocks, that have either been grown at home or imported, are kept in cool cellars during the winter, until about the beginning of January, when the grafting takes place in these cool cellars.

Whip or tongue-grafting is the method usually employed. The only advantage one nurseryman may have over another is;—that he uses a whole root for his graft, and discards the first and second cuts. By the first and second cuts, we mean, long tap or finger roots, that are cut from the stock, when the grafter is trimming his roots, and these same roots that are cut off are sometimes used by nurserymen and sometimes discarded. There is but little advantage in using the whole root, and there is no reason why the strong root trimmings should not be used, if they are thrifty enough to take a scion. Our leading nurserymen make a practice of grafting entirely on the whole root.

It is plain to anyone, who knows the first thing about grafting, that the United States agents referred to are inventing some new scheme, to gull the poor farmers again. We take the opportunity of warning our readers against them and their methods.

FRUIT MEN IN PARLIAMENT

More horticulturists should be in Parliament and in our Legislative Assemblies. There is need for men who know something about fruit growing and kindred pursuits. The enacting of legislation that has to do with the progress of our fruit industry requires the support of men acquainted with the business.

It is with pleasure, therefore, that we learn of the nomination of Mr. Martin Burrell to contest the Yale-Cariboo constituency in the next Dominion election. Apart from politics (and we do not know the party that he supports), Mr. Burrell is eminently fitted for a place in Parliament, no matter to which side of politics he belongs. His long experience as a fruit grower, the excellent work that he did at the Dominion Fruit Conference in 1906, the manner in which he performed his duties as representative for British Columbia at the fruit shows of England and the great interest that he takes in the development of the fruit industry of Canada, make him highly deserving of the confidence of the electors. Furthermore, the retirement of Mr. E. D. Smith, M. P., the Conservative member for South Wentworth, Ontario, and the fact that Mr. A. A. Wright, M. P., the Liberal member for South Renfrew, will not be a candidate at the next election, both of whom have done valuable work in the interests of our fruit industry, demand the election of one or more men to continue the work.

A COURSE IN FLORICULTURE

The short course in horticulture that was held at the Ontario Agricultural College last January proved to be a commendable feature. Its chief interest was for fruit growers and good work was done. As we understand that the program for the course next winter is now in course of preparation, we would suggest that a course in floriculture also be established. The commercial flower growers of the province feel that their branch of horticulture has not received the attention of the Ontario Agricultural College that its importance warrants. The industry is developing rapidly. To keep abreast with its progress and its demands, florists must keep in touch with all that is known about the business and with all that can be discovered. From whence can such information better be disseminated than from the Ontario Agricultural College? It is supposed to be the fountain head of knowledge in horticulture as well as other branches of agriculture. Much good work has been done by the institu-

tion but more is needed. Here is an opportunity to do something for our florists.

A prominent florist in Hamilton recently told THE CANADIAN HORTICULTURIST that he, for one, would be glad to attend such a course. Many others feel likewise. The time is ripe for a course in floriculture and it should be started next winter.

The annual meetings of the horticultural societies of Ontario will be held this year in November instead of next January. The reason for changing the date of the time of holding the meetings is that they may be held at the season of the year when greater interest is taken in horticultural matters and when the members of the societies are still enthusiastic over the season's work. The earlier date will enable the societies, also, to appoint some of their new officers as delegates to attend the annual meeting of the Ontario Horticultural Association that will be held in Toronto at the time of the Ontario Horticultural Exhibition, where methods of increasing the usefulness of their societies will be discussed. Every horticultural society in the province should appoint one or more delegates to attend this convention.

There is an element of unfairness in the preparation of the prize list for the fruit exhibits at the Canadian National Exhibition. Growers of fruit in Western Ontario always have an advantage over those of the East and North. Their fruit matures much earlier and, as a consequence, they can place it on the show tables more advanced in color and size. Some scheme for overcoming this condition of affairs should be incorporated in the prize list so as to give exhibitors in all parts of the province an equal chance. A step in this direction would be the granting of prizes for county exhibits such as is done at the Ontario Horticultural Exhibition, held in Toronto, every November.

The horticultural exhibition to be held at Kentville, N. S., Oct. 7-9, promises to be the greatest event of its kind ever held in the maritime provinces. Every person interested is enthusiastic. Preparations are being made on an elaborate scale for a show that will be of great value and interest to exhibitors and to the public. All friends of horticulture in the east should do their part, by exhibiting, by attending, or by both, in making the exhibition a credit to Nova Scotia.

British Columbia Fruit

The older fruit districts of Canada are gradually learning that British Columbia is becoming a big factor in our fruit industry. In an article that appeared in the *Toronto News*, Mr. E. J. McIntyre has this to say about the qualities of British Columbia fruit:

"The fanciest of fancy apples, it must be admitted, come from British Columbia. Spitzenbergs, Kings, Spys and Baldwins acquire in that favored province a wealth of size and glorious coloring that is nothing short of marvelous. The plumage of the golden pheasant is scarcely more gorgeous. One can easily imagine them taking the lead in British markets against all competition once an export trade is developed. In flavor and quality they do not quite reach our standard, but they are certainly not inferior in these regards to the apples of Oregon and California."

We have received from Messrs. Ellwanger & Barry of Rochester, N. Y., an excellent little catalogue of select peonies, phloxes, irises and other plants for fall planting.

The Irrigation Convention

J. Sanger Fox, Vernon, British Columbia

AS recorded in the September issue of THE CANADIAN HORTICULTURIST, the second annual convention of The Western Canada Irrigation Association was held in Vernon, B. C., in August. On Monday, the 10th, two sessions were held, and on Tuesday, three, while on Wednesday the day was spent in driving to points of interest to irrigationists in the neighborhood, finishing up with a banquet in the evening. Thursday, Friday and Saturday were spent visiting points of interest down the Okanagan Lake and partook rather more of a recreative character. Besides this a number of delegates stopped over at Armstrong, a few miles north of Vernon, and were driven over some of Armstrong's timber limits with an idea of seeing something of the practical side of the forestry question in connection with irrigation. The ladies of Armstrong treated them to a most tasty lunch.

In the presidential address, at the opening session, the Hon. F. J. Fulton made a very important utterance with respect to the Government's attitude on the question of the amendment of the present Water Clauses Consolidation Act of British Columbia, and said that with the help of Mr. J. S. Dennis of Calgary, the well-known irrigation expert, he was engaged in drafting legislation which would meet the needs of present day affairs. He stated that contrary to the usual precedent, he intended to get this printed and distributed broadcast so that all interested in the subject would have every possible opportunity of seeing what was proposed, and of offering suggestions in the way of amendment or rejection, if its provisions did not meet with their approval.

Speaking of Mr. Fulton's reference to himself as assisting in the drafting of an amendment to the present law in British Columbia, Mr. Dennis said that the Hon. Commissioner for Lands and Works was not in any way bound by any views which he (Mr. Dennis) might express, but he was merely assisting him with such suggestions as in his experience in irrigation matters in the prairie provinces he was able to give him.

Briefly outlining his idea of what was wanting and what was required to make the Water Clauses Consolidation Act a thoroughly comprehensive one, the speaker stated that the first thing that would have to go was the "Miners' Inch." This would have to be replaced by a recognized unit, probably the acre-foot, or the cubic foot per second. Referring to the hopeless state of over-recording on practically all the streams in British Columbia, he thought the next thing to be done was a thorough and drastic "house-cleaning" process. All the streams would require to be surveyed, the amount of water flowing in their channels at low water, high water and flood, be ascertained, the amount and extent and title of each record gone into most thoroughly, and—herein lay the drastic measure—all those records not being used beneficially after having been given a thorough chance to "make good," cancelled altogether. The remaining ones, he thought could be so adjusted as to meet within some fairly reasonable bounds the capacity of water in the streams. If there were not enough water at low water to satisfy all the water records, those which were unmet would have to conserve the flood water for use when water ran short during the dry season.

In connection with the latter point, legislation would also have to be provided encouraging private parties to build reservoirs and protecting them in the conveying of water thus preserved to their own lands.

Another point that would have to be defined would be the duty of water; i.e., in applying for a water license, the applicant would have to state for what land the water would be required.

He thought that a law with these basic features would be successful, and would make it impossible for streams to be recorded more than the amount of water that they contained, and would ensure to every record the amount of water specified therein. Mr. Dennis also mentioned the matter of the preservation of the water sheds, and stated emphatically that it was of the utmost importance in the regulation of the flow in mountain streams that the water sheds should be kept well wooded, and not denuded of their timber and vegetation.

NOTE.—Many other valuable addresses and discussions took place. A number of important resolutions were passed. These and the discussion they provoked will be mentioned in the next issue of THE CANADIAN HORTICULTURIST.—Editor.

Export Apple Trade

Editor, THE CANADIAN HORTICULTURIST: In some quarters there has been apparently an effort to belittle the brokerage firms in Great Britain and to urge upon growers the desirability of selling their apples f.o.b. and, as I represent what I believe is the oldest firm of receivers of American apples in Great Britain, Messrs. Woodall & Co., who received apples in 1847 from the Underhill orchard at Croton Point, New York, I think it only right I should say something by way of counteracting it.

It is quite true that there are numerous undesirable receivers in Great Britain; at the same time, the reputation of the good ones should not suffer for the actions of the bad. There are six firms comprising the Liverpool Fruit Auction who sell goods publicly and above board, and while a few smaller firms, who cannot get on this Auction and who have not capital enough to carry on an extensive trade, are forever sending out misleading, venomous and malicious statements against what they term a combine, born only of envy and jealousy, the fact remains that more than 90 per cent. of the independent consignments of apples go to this same Auction, shipped by men who have been in Liverpool many times and are thoroughly conversant with the workings there. In spite of this slander, which has gone on in some quarters for years, the Auction still flourishes and is acknowledged to be the best medium for the distribution of fruit. The sales are public and above board. Any buyer of good standing can be a member by application. What some term a "closed room" is not such and this term is misleading, the regulation being merely to keep out a lot of loafing draymen or people who would put in bids and are unable to pay for the fruit or who have previously abused the credit granted by the Auction, (you will understand that the brokers guarantee the accounts of purchasers and it is absolutely necessary to make as few bad debts as possible and sell only where the money is sure), and who would use up the time of

the hundreds of buyers who come three days a week from all part of Great Britain.

The charges are actual and open and sales are printed on catalogues which are issued broadcast so that no mistakes can be made, nor can varied commissions be charged which is not the case under private sale methods. In the one case, goods are offered publicly and practically the whole of Great Britain competes for them, and in the other, competition is limited to the customers of one small receiver; and these croakings remind one of the flea telling the elephant not to push.

The Liverpool brokers have really been the best friends of the Canadian apple growers. The competition among themselves to get business has caused their agents to scramble over each other making advances in many cases to questionable men to get business and, at least, has been the means of handling thousands of barrels that would otherwise not have been handled had the banks been depended on to furnish the money or the trade been left to the few independent dealers who, of course, would have bought at much lower prices. This evil the brokers have seen the necessity of remedying, however, and hereafter only reliable men will receive any assistance from them.

A WORD ABOUT CO-OPERATION

From the brokers' standpoint, it is immaterial by whom apples are shipped or pack-

ed. They are there to sell the fruit, like brokers in any other business and, where a man of ability and integrity and with the necessary experience is manager of the co-operative association everything runs well. There are managers, however, who insist upon such large side commissions that there would be nothing in it for a broker to handle the stuff, and there are other managers without the experience of many years; in both the latter cases, the results are the same. Also there are many districts not adapted for co-operation, the growers being interested in mixed farming and when they should be picking their apples they have so many things to attend to that they prefer selling out and out to dealers. If a broker were to receive per barrel what some managers get, they would not be long in getting rich. This does not apply, however, to a few genuine men who are making a success of managing co-operative associations. I know of many cases where individual dealers have shipped to the Auction and obtained higher prices than the associations who consigned or sold f.o.b. for practically the same fruit.

Growers sometimes ask "why cannot we sell our apples as we sell our cheese"? I reply. "Because cheese and apples are entirely different products." The former, after its arrival in Great Britain, can be held with safety indefinitely, while the latter must be sold and got into consumption after an ocean trip.

When the market goes wrong, many people who contract purchases here are unable to pay for the fruit and the stuff has to be sold at the Auction in a poor market, although possibly the contractor has had many previous shipments which have cost him much less than he would have paid at auction.

Naturally the millenium in the trade would dawn could everything be sold here at satisfactory prices but the growing districts are so extensive and there is such variation in quantity and quality and in condition after landing that an occasional slump is unavoidable, and the biggest shippers have found that the Auction averages the best prices and is the safest and cheapest method of getting highest prices.—Eben James, Toronto.

National Apple Show

Great preparations are being made for the National Apple Show to be held at Spokane, Wash., U. S. A., on Dec. 7 to 12. It is expected that premiums will be offered amounting to over \$35,000, consisting of cash, irrigated tracts of land, farm implements and articles especially adapted to orchardists' use. While called the "National Apple Show," the exhibition is fast assuming an international character. The management is encouraging, with good results, exhibits from all over the world.

Special premiums are being offered for exhibits from the provinces of Canada and all general classes are open for them also. The following prizes are offered for the exclusive benefit of all foreign countries that compete, including Canada: For the best two barrels or six boxes of apples, one or more varieties (may be exhibited in box, barrel, plate or staged).—First prize, \$100; second prize, \$50; and third prize, \$25.

Our provinces should make both individual and collective displays. Exhibits are expected from Kelowna, Nelson, Revelstoke and other places in British Columbia. It is hoped that Ontario and Nova Scotia and other provinces also will be represented. Individual growers, fruit growers' associations and all others interested can obtain copies of the premium list by writing to the secretary, Mr. H. J. Neely, 223-224 Hutton Place, Spokane, Wash.

Scotchmen Visit in Canada

The Scottish agriculturists, who toured Canada during the latter part of August and early in September, visited the famous Niagara fruit district. At St. Catharines, they visited the farm of Mr. W. C. McCalla and were accompanied by leading fruit growers of the district and prominent men of the city. They visited also the St. Catharines Cold Storage and Forwarding Co. and the graperies and wine cellars of Mr. George Barns.

From St. Catharines, the party journeyed to Beamsville, Grimsby, Winona and on to Hamilton. Among the places visited were the Beamsville Canning Factory and the farms of Messrs. Hamilton Flemming, Beamsville; A. G. Pettit and H. L. Roberts, Grimsby; Murray Pettit, E. D. Smith and J. W. Smith of Winona. The day was a most enjoyable one, the visitors expressing many complimentary remarks in reference to the growers and the scenery of the district.

A few days previous, the Scotchmen visited the famous melon patches of the Montreal district, under the guidance of Mr. R. Brodie, of Westmount. Their surprise and pleasure at seeing such large, luscious melons growing in Canada was great.



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Horticulture at the Canadian National

THE horticultural exhibits at the Canadian National Exhibition in Toronto last month were superior in most respects to those of last and previous years. More good material was shown than ever before. The quality of the individual exhibits was good and the arrangement was a long step ahead of past efforts. An effort was made to have the show of fruit, flowers and vegetables artistically displayed rather than a mere jumble of entries put up in any old way.

THE FRUIT

Owing to the closeness of competition in the fruit department, the judges had much difficulty in placing the awards. There was a greater number of varieties than in past years and the quality was good and mostly uniform. The color and size of the specimens was well advanced. The exhibitors seemed to have exercised great care in selection. In apples, the collections of 40 varieties were fine. The first prize was awarded to Mr. Harry Dempsey, of Rednersville, Ont., who put up one of the finest lots of apples ever seen at the exhibition. The second and third prizes went to Mr. W. E. Weese, Albury, Ont., and Marshall Bros., Hamilton, respectively, for exhibits almost equally as good. The display of apples on plates also was fine. They were well colored and well grown. In the display of apples in boxes, there was some good fruit but apparently some of our growers have something yet to learn about packing. Many of the boxes were packed ideally but others either were slack, too full or not uniform in grading. Some exception was taken to the awards given in some of the sections but probably had

those who objected heard from the judge his reasons for placing the awards as he did, they would have been satisfied. One noticeable thing, however, was the fact that prizes were awarded in some three or four instances to apples packed in evaporated apple boxes rather than in the standard boxes for export.

The peaches were an exceptionally fine lot. They were highly colored and of superior quality. Space will not allow a detailed reference to the various exhibits and the successful competitors. We can mention only one winner who was most successful. Mr. T. G. Bunting, of St. Catharines, secured first prize in most of the sections in which he entered and he had a large number of exhibits. He entered 13 plates and secured 13 first prizes. He was fortunate, also, in securing first prize for the best display of fruits, including apples, pears, grapes, peaches and plums.

Unlike last year, the grapes were very fine. They were well colored and mature. The whole display was creditable. The plums were away ahead of anything of the kind that have been seen for years. Pears also were good. Those packed in boxes could not have been improved upon.

In spite of the great improvements in the display of fruits, it cannot be said that perfection was attained. Two important points in arrangement could have been bettered. The display of fruits in commercial packages was poorly put up. The boxes were placed flat on the tables just as they were last year and which was pointed out in THE CANADIAN HORTICULTURIST at the time. The exhibit was almost valueless from an educational viewpoint. By placing the boxes on the level, there is also a

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great chance of the original methods of packing being disturbed. They should have been placed obliquely with the back ends of the boxes at least eight inches higher than the front. It is said that those in charge of this department gave instructions to have this done but they were not carried out. The second feature that could have been improved was the promiscuous mixing of the various classes of fruit on the tables. Grapes, apples, pears, plums, and peaches could be found in three or four different places on the different tables. These would have been displayed to greater advantage had each kind of fruit been kept together. The apples should have been placed on one table, the peaches on another as far as they would go, and so forth. Such an arrangement, also, would make the placing of awards easier for the judges.

THE VEGETABLE DISPLAY

The display of vegetables slightly excelled that of last year in point of numbers and more than excelled it in quality. The celery, cauliflowers, tomatoes, parsnips, squash, beets and most everything were good. The cabbage, carrots and corn were exceptionally good. The onions were not as good as in former years on account of a blight. The same can be said of the potatoes. There were four entries in the general collections. The 1st prize was won by Brown Bros. of Humber Bay, Ont.; 2nd, William Harris, Humber Bay; 3rd, E. Brown, Wychwood, Ont. The fourth collection although not in the placing, was a most creditable one. It did not contain quite as much material as the others but it showed skill on the part of the grower. An interesting feature in connection with it, is the fact that all the stuff that was shown was grown on a lot 25 feet wide by

100 feet long. The exhibitor was Mr. George Baldwin of Toronto. Space does not permit mention of other prize winners except to note that in addition to those already mentioned other successful exhibitors were, J. B. Guthrie, Dixie, Ont., and Thos. Delworth, Weston, Ont.

Some exhibitors lost awards through carelessness in following the stipulations of the prize list. To win prizes, they must exhibit in the various sections what the catalogue calls for, neither more nor less. The vegetables were judged by Mr. Geo. Syme, jr., Carlton West, Ont. Mr. I. Elford, of Humber Bay, Ont., deserves much credit for changing the arrangement of the tables and for placing the exhibits where they could be seen to best advantage.

THE FLOWERS AND PLANTS

In the floral department, experts pronounced the large groups of plants to be the best pieces of decorative work ever seen in America. So keen was the competition in the floral display, covering 500 feet, that the judge divided the first and second honors between Thos. Manton of Eglinton, Ont., and the Allan Gardens, Toronto, which latter group was put up by Mr. E. F. Collins. The third prize was given to Sir Henry M. Pellatt's group, which was put up by Mr. T. McVittie. The fourth prize was awarded to Mr. D. Robinson, Reservoir Park; fifth, W. Howson, Central Prison; sixth, E. Grainger, all of Toronto. The cut flower sections, the design and made up work and other classes were well contested.

GOVERNMENT DISPLAY

The Ontario Department of Agriculture had a display that was a credit both to the department and to the province. It was in charge of Mr. P. W. Hodgetts and was the

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best yet. All the fruits in season were shown. The arrangement was about all that could be desired. The display was put up with the idea of showing the public what the province can grow. All the plates, packages, bottles and so forth, were arranged to the best advantage. The exhibit included a great collection of peaches and plums. Mr. W. T. Macoun, of the Central Experimental Farm, Ottawa, contributed some excellent specimens of early apples. The Ontario Agricultural College had an exhibit of particular educational value in its display of insects and fungous diseases injurious to fruits and vegetables.

Transportation—Its Evolution

It is a far cry from the ox-cart of 60 years ago to the International Limited or the Imperial Express of to-day, and yet it is not so very far after all. Fifty years of development has made a wonderful change in the methods of transportation in Canada. Steam and electricity have made it possible to travel by land at a rate of 60 or more miles an hour and all has been accomplished in little more than half a century.

It is fully recognised that upon the development of the railway systems largely depends the progress of our country. Many of us, however, overlook the fact that similar development has been going on amongst the ocean going vessels and, after all, have these not been the pioneers, so to speak, who originally came to spy out the land whose wonderful progress has made Canada a nation.

If it be a far cry from the ox-cart to the modern locomotive it is a still farther cry from the caravels of "Columbus" to the modern Turbiner. It is impossible to write a review of the evolution of the steamship

without introducing the names of the Allans.

As far back as 1822 we find Captain Alex Allan on his first voyage to Quebec on the brig "Jean." Eight years later this service had been increased by four larger vessels and so on down through the intervening years the Allan service has been improved until to-day the Allan line has over 30 vessels aggregating 176,000 tons. The turbine steamer "Victorian" (12,000 tons) recently completed a record trip in which the vessel steamed at times 19 knots an hour and at an average of 18.77 knots throughout the voyage or a little over 5½ days from port to port. It is estimated that since the founding of this line of steamers the Allans have carried 1,500,000 passengers from Europe. This forms no small proportion of the entire population of Canada and speaks well for the popularity of the line. There will probably be many readers of this article who have crossed to this new world in the early days by the Allan Line, and to them the names of such vessels as the "Canadian," "North American," "Anglo Saxon," "Pomeranian," "Scandinavian," "Sardinian," "Mongolian," "Numidian" and "Parisian," will cling to their memory as a pleasing recollection of the tie that bound them to the motherland. Many of these vessels have been replaced by much larger and more modern ships, until the Allan Line is now looked upon as the great connecting link between Canada and Britain. In the last 12 years the Allan Line has acquired and constructed 12 ships, namely the "Victorian," "Virginian," "Corsican," "Tunisian," "Grampian," "Hesperian," "Ionian," "Pretorian," "Sicilian," "Corinthian," "Hibernian" and "Hungarian," aggregating 104,500 tons.

Not only has the line looked after the

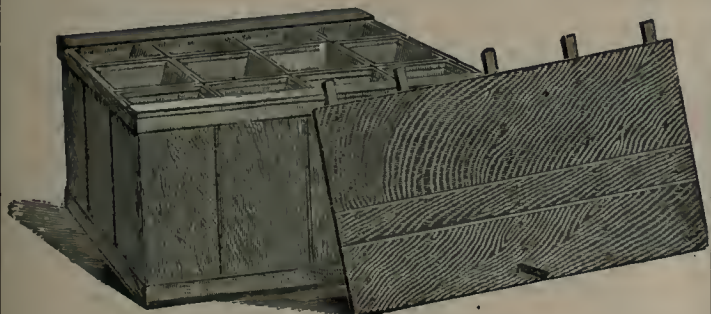
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comforts of so many people but it has also been foremost in transporting freight cargoes. Originally the bulk of the ships' cargoes consisted of lumber and grain supplemented later by cattle, but as the country developed, produce of all kinds was offered for shipment, and to-day large quantities of butter, cheese, eggs, bacon and apples find their way to the European markets via the Allan Line.

The carrying of perishable traffic again brought the business acumen of the members of this line into prominence and after several experiments, the government, in order to foster the fast growing trade in butter and cheese, contracted with the Allans for the installation of a refrigerating plant in certain of their vessels. This service proved successful from the very beginning and the result is, with the most modern of ships, the Allan Line has installed an aggregate of 272,393 cubic feet of cold storage and 158,782 cubic feet of cool air, whilst the ordinary stowage of the ships is improved by the introduction of steam driven fans for the cooling of the holds.

It may be interesting to our readers to know that to the late Sir Hugh Allan, one of the founders of the line, and to the late Walter Shanly, general manager of the Grand Trunk Railway, belongs the honor of adopting the first through bill of lading for ocean traffic. This was as far back as 1859, and at that time New York was issuing local ocean bills in exchange for inland receipts.

If it were possible to peruse a set of these bills of lading from the year 1859 down to the present time some very interesting facts would come to light in regard to the rates of carriage. The writer has been unable to secure the east bound rates on the first bill of lading but has been

fortunate enough to obtain the figures for the first through bill issued from Liverpool to Ontario points on dry goods, and finds that the importer paid \$21.90 per 40 cubic feet, whereas to-day by fast Turbine ships of the Allan Line delivering dry goods at Toronto in 10 days after leaving Liverpool the rate is approximately \$6.00 per 40 cubic feet which goes to show that with larger and faster vessels the rate in the last 50 years has been reduced about 72 per cent. The export rates from Canada have no doubt receded in the same ratio.

In looking back, therefore, over the history of shipping one cannot help but conclude that the record of the Allan Line is practically the history of Canadian maritime commerce. Now in this year, 1908, with a magnificent fleet of 30 vessels, the Allan Line offers to its patrons the best service of its career.

Species of Roses

Editor, THE CANADIAN HORTICULTURIST: In your report of my paper on "Roses" at Coney Hill, I am reported as having said that there are 300 or 400 species. What I intended to say (and it was very dry up in that section) was that the species varied according to different botanists from 30 to 300 or 400, and that 50 species would no doubt cover all the variations of the plant. Lest there be any misunderstanding in regard to my reference to the drouth, I wish to state that no inferences were intended. G. P. Hitchcock, Massawippi, Que.

I like THE CANADIAN HORTICULTURIST very much. I am very fond of plants and flowers, and gain a great deal of useful information from it.—Mrs. W. S. O'Neil, Paquette Station, Ont.

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Winnipeg

George Batho

The Manitoba Horticultural Exhibition, held in Winnipeg, September 3-5, was successful even beyond the expectations of the most sanguine. This province has never laid claim to any great distinction in large fruit growing, but the apple display shown by Mr. A. P. Stevenson, of Dunston, near Morden, would have cast no discredit upon a professional exhibitor from any province in the Dominion. He showed 50 varieties of apples and crabs, several kinds of plums, and the Compass cherry. Mr. Stevenson's apples were all beautifully free from any external defects, and showed delicate rather than high coloring. The varieties, of course, were such as have been grown in Minnesota, rather than the sorts so well-known to Ontario orchardists. Other prize winners in the apple section were: West Winnipeg Development Co., Headingly; A. McLeod, Morden; Rev. W. R. Johnston, Killarney; W. J. Brattston, Winnipeg; James B. King, Fairfax; W. C. Hall, Headingly.

The vegetables were really splendid. Western prairie soil is wonderfully fertile, and in annuals, whether of the ordinary table vegetable class or of the flower tribe, Manitoba needs take a back seat to none. Perhaps the centre of attraction in the vegetables was the collection of vegetables sent in by agricultural societies. First place in this competition went to the Kildonan and St. Paul's Society, second to the St. Vital Horticultural Society, and third to Dauphin Agricultural Society. The first was particularly good.

It is hard to particularize anywhere else in the vegetable class, professional or amateur. Perhaps it may be said that here and in the cut flower class the amateurs, on the

whole, outdid the professionals. There was good competition throughout, and the prizes were well scattered.

Kootenay Valley, B. C.

H. W. Power

Kootenay's two fruit fairs, Kaslo and Nelson, were held during September and passed off very successfully. That at Kaslo occupied two days, the 17th and 18th and the Nelson exhibition was held during the 23rd, 24th, 25th and 26th. Both were magnificent exhibitions of high class fruits and, as in the past, have done much to stimulate the fruit industry of the Kootenay and the boundary. The various district exhibits were particularly striking and gave strangers an idea, not otherwise obtainable, of the fruit growing possibilities of the hundreds of mountain-bounded valleys, in the interior of the Pacific province.

Grand Forks, the capital city of the boundary, is going into the apple exporting business on a large scale and will send six car loads of high grade apples to Australia this fall. The amount of ground being brought under cultivation in and around Grand Forks and through the Kettle River valley is increasing rapidly and the section bids fair to rival the Okanagan valley as a producer of fruit in large quantities, and as far as quality is concerned, is not one whit behind.

Apples will be a fair crop throughout the Kootenays and pears medium. Plums proved heavy. Cherries turned out fairly good and brought the growers good prices. It is too early in the horticultural history of the section to say anything about peaches. Prices in general ruled low, being governed largely by those across the line.

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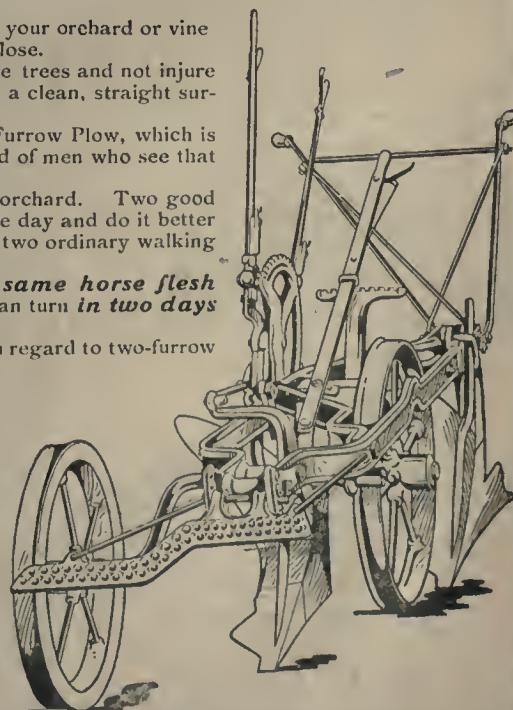
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Annapolis Valley, N. S.

Eunice Watts

The Nova Scotia Horticultural Exhibition is to be held in Kentville on Oct. 7, 8, and 9. The regular premiums offered amount to \$1,500; also special prizes of \$1,200. It is expected that the fruit display at this show will be the finest ever seen in Canada.

The weather so far (Sept. 14) has been perfect for fruit growers. There has been no frost to spoil the cranberries which have never looked better. There have been no gales to scatter the apples or break the boughs, which in many orchards are weighed down to the ground with fruit, and the days have been warm and sunny, making work pleasant. Although some orchards show a poor crop, on the whole the fruit crop will be good and clean.

Dealers are not so eager to offer big prices this year for apples. Some of them are offering \$1.25 a barrel tree run, for the whole orchard of good fall and winter fruit. Others are offering \$1.25 for Emperors and Gravensteins, one's and two's packed.

Potatoes began at 50 cents a bushel, but have now dropped to 40 cents. Crops look good. Mushmelons have ripened nicely out of doors. Tomato rot (*Macrosporium tomato*) seems to be more troublesome than in most years especially where the fruits are in contact with ground. The woolly aphid (*Schizoneura lanigera*) has appeared on the nursery stock, and appears to be spreading. If these pests cannot be checked by kerosene emulsion the young trees will probably be destroyed by the grower.

The perpetual bearing strawberries, such as the St. Joseph, are now fruiting where the first flowers have been picked off, and will continue bearing until frosts. They are nice for home use, but not of much commercial value.

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The Canadian Horticulturist
PETERBORO, ONT.

Nova Scotia

G. H. Vroom, Dominion Fruit Inspector

The Halifax Exhibition for 1908 is a thing of the past. Owing to the early date on which it was held—Sept. 2 to 10—the fruit show was not a creditable one for Nova Scotia and did not fairly represent the quality of fruit grown in this province this season. The whole fruit show looked small, immature and green and must have had a tendency to injure, rather than to benefit, this province commercially. Collections of fruit and berries were shown from the following counties: Annapolis, Kings, Hants, Digby, Cumberland, Colchester, Pictou, Antigonish, Lunenburg and Halifax.

W. F. Duncan of Wolfville carried off the sweepstake prize for the province, as well as the county prize for Kings. The fruit prize for Annapolis went to Byron Chesley, Clarence. And for Hants, to C. A. Dill. For Digby, H. Rice got first and for Lunenburg, M. Wentzel; Cumberland, S. Harrison; Colchester, P. M. Anderson; Pictou, Peter Jack; Antigonish, H. Thompson; Halifax, John Barnes. W. S. Duncanson had a fine display of grapes grown in the open.

The plate varieties of apples were poor, with the exception of Early Bough, William's Favorite, Duchess, Astrachan, and a few more of the early sorts. No fruit was shown in packages and the absence of barrels and boxes detracted from the general appearance of the exhibit and gave it an unfinished look.

The Maritime Experimental Farm, Napan, N. S., had a very creditable show of fruit consisting of 20 plates of apples which had been selected with great care by the manager, Mr. Robertson. The one thing that would impress an expert would be the uniformity of the specimens on each plate, also the clear, clean skin of the fruit. Nothing like fungus was to be found, and the color was good for the season. Mr. Robertson also had a fine display of tomatoes, grain and grasses. Alfalfa, with roots fully two feet long, was a prominent feature of this show.

The fruit crop in Nova Scotia is larger

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than the wise heads predicted some weeks ago and the quality is very good. Dealers are buying Gravensteins at \$1 for No. 2, and \$1.25 for No. 1, packed for market. Evidently they do not intend to lose much hard cash this season. The first shipment to England went on Sept. 11th, by one of the Furness Withy Co. ships. The cargo consisted of 15,000 barrels, mostly Gravensteins. Cranberries are a bumper crop and the quality is fine.

New Brunswick

Alfred E. McGinley

The exhibit of fruits at the Provincial exhibition was generally conceded to be far above the average usually brought out at this fair. Particularly in apples did the orchardists of the province and of Nova Scotia make an excellent showing, but there was also a good display of small fruits. In the vegetable classes, attention was at once attracted by the uniform excellence of the potatoes and the judges had a difficult task in deciding upon the winners. The flower show was hardly as large as usual, but the quality was good. As usual the professional florists captured most of the prizes.

In the vegetable classes the river farmers did particularly well. For the best assortment of potatoes, O. W. Wetmore of Clifton, N. B., secured the first prize. He was also successful in winning several class prizes, and the prize for general excellence in potatoes, offered by the Provincial Chemical Fertilizer Co., Ltd., of St. John.

In the competition for the best collection of field roots, exclusive of potatoes, A and C. A. Harrison, of Mangerville, were first and this firm also captured the prize for the best collection of field roots and garden produce. The prize of \$20. offered by W. Atlee, Burpee & Co., seedsmen of Philadel-

phia, for the best collection of vegetables grown from Burpee's Seeds, was won by John Maxwell of Upper Sheffield. The sweepstakes prize for the best assortment of garden produce was won by John Maxwell, with A. and C. A. Harrison, second.

In the apple classes the prize for the export and domestic varieties was, as expected, captured by that veteran orchardist, E. T. Nully, of Middleton, N. S. S. L. Peters, of Queenstown, N. B., won the first prize for baskets of apples. In pears, H. E. Bent of Tupperville, N. S., H. A. D'Almaine, and S. L. Peters, of Queenstown, N. B., were the most successful competitors. Mrs. S. L. Peters, with a very pretty exhibit, won the prize for the best fruit decoration for a dining table. In plums prizes were won by H. E. Bent, H. A. D'Almaine, of Wolfville, N. S., and H. D. Johnson of Wolfville.

The county prizes for the best collection of fruits were won respectively as follows: Westmoreland, Albert, Kings, Queens, Sunbury, York and Victoria. The special prize for the best 10 varieties of apples grown in

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Mention The Canadian Horticulturist when writing.

New Brunswick and correctly named was won by J. P. Belyea, and that for the best five varieties grown in New Brunswick and most valuable for export by S. L. Peters. The prize for the best collection of fruits exhibited by the grower in which perishable fruits were shown in a preserved (natural) condition was won by George McAlpine, Lower Gagetown.

In flowers the best exhibits were made by Messrs. H. E. Gould, Sussex, and Pedersen, St. John. Mrs. H. F. Grosvenor of Meductic, York Co., was awarded a special prize for grapes grown under glass and H. A. D'Almaine for quinces.

I get many valuable hints from THE CANADIAN HORTICULTURIST, on caring for flowers and growing vegetables.—I. G. Walker, Happy Valley, B. C.

I enclose my renewal subscription to THE CANADIAN HORTICULTURIST. I have taken THE HORTICULTURIST now for a number of years. You are improving it from year to

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For particulars refer to Editor of this Journal

year, so that it now ranks foremost amongst the publications of horticulture on this continent.—H. Harley, Dauphin Co., Manitoba.

I have been a reader of THE CANADIAN HORTICULTURIST for the past year. I consider it a magazine well worthy of a place among books, magazines and papers on fruit and general horticulture, and well worth a dollar. I have noted with interest the great advancement it has made during the past year, and wish it double the success during the coming year.—Wm. Beattie, Summerland, B. C.

A book that should be obtained by those who purpose planting bulbs this fall, is the 1908 bulb catalogue of J. A. Simmers. This catalogue, like all other catalogues published by this firm, is full of valuable suggestions and lists of the best bulbs and plants for fall planting. Mr. Simmers mentioned to our representative recently, that they have never had a better quality of bulbs than those that have recently been received from Europe. This catalogue will be found to be one of the most complete and comprehensive lists of bulbs to be found in Canada, and will be sent free to those intending to plant this fall.

One of the best and most artistic bulb catalogues that has ever come to our office is the fall catalogue of the Wm. Rennie Company, Limited. It is so entirely different to the usual catalogue, that it makes a favorable impression on first sight. The cover is printed in imitation of sealskin leather with a panel in the right-hand corner, in which appear three tulips printed by a colortype process. The inside is attractively gotten up and numerous collections are arranged for the benefit of those desiring to get the very best tulips at a

moderate cost. Two of these collections are advertised in this issue. The catalogue is free for the asking.

The Fall bulb catalogue of John A. Bruce & Co., Hamilton, Ont., has just been issued and will be sent free upon request to those intending to plant bulbs this fall. The cover is tastefully gotten up and shows several fall scenes both in Canada and Holland, and is excellently printed by a colortype process. The contents are, as usual, arranged in a very comprehensive manner, which makes it an easy task to select the bulbs best adapted for the individual purpose. Their advertisement appears on another page.

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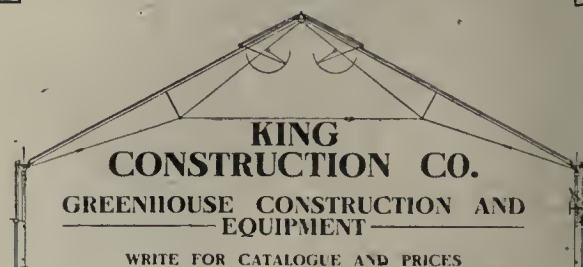
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Possibilities of Fruit Growing in Alberta

G. H. Hutton, Superintendent, Experimental Farm, Lacombe

IN DEALING with the subject, "Fruit Growing in Alberta," one must of necessity deal more in the somewhat speculative possibilities of development in the future, rather than the accomplished facts of the past and present. In being, in a measure, speculative and optimistic as to Alberta's future success in growing cultivated fruits of many kinds, one is heartily in accord with the general spirit of the west as applied to almost every line of her effort. The west reveals her speculative tendencies in regard to lots and lands and everywhere you go, the optimistic man is met, who is full of buoyant hope and lives in the future and its possibilities.

Alberta earnestly desires to be classed among those happy provinces where the clover blossom sheds its practical perfume, and where apples delight the eye and appetite. One is justified in indulging the hope that her desire will be realized when we consider that few countries or provinces can show a wider range of wild fruits of good quality than are produced here. The prairie in May is covered with the bloom, and later in due time with the fruit of the wild strawberry. This fruit is abundant and of good size—such a size, in fact, that settlers frequently gather plants from the prairie and give them garden cultivation with success.

Cultivated varieties of the strawberry have been tried here and there. These attempts have been generally successful, a gentleman of Red Deer claiming, under the single hedge row system, one quart to each plant. Another grower at Leduc produced a very fine patch last year, which gave good promise in May last. The results in fruit I have not learned. The size and quality of the fruit is all that could be desired. While we have no results from our work on the Experimental Farm to publish as yet, I am confident that good money can be made growing strawberries in Alberta with as little risk as elsewhere. Bloom can be held back slightly until danger of late frosts is largely past. Wind breaks can be provided so that the runners will root and not be blown about by the wind.

Following the strawberries, growing in the wild freedom of the prairie, are

gooseberries, currants and raspberries. These not only grow well according to nature's plan, yielding in quantities sufficient to tempt the Indian lasses to increase their worldly wealth by picking and peddling, but where cultivated varieties have been tried, success has attended every effort as far as I know. Red currants in particular do well.

All varieties of red, white and black currants planted on this farm have done well, though, since started in the spring of 1907, they have not reached heavy bearing age. Small quantities of fruit have been produced this year and the size and quantity is such that I feel war-

A Credit

I have received THE CANADIAN HORTICULTURIST from the first number of its existence, in 1878, to the last number issued, being over 30 years without intermission. I always keep the copies of THE CANADIAN HORTICULTURIST and have bound a large number of the volumes. They are a credit to any book-shelf.—Daniel B. Hoover, Almira, Ont.

ranted in saying that these fruits should be planted in every farmer's garden, and that they can be counted on to give a good account of themselves.

In regard to the larger fruits, little definite can be said as a result of our work, except to say that we are trying cherries, plums and apples, and expect to succeed with some varieties of these fruits. We lost only about eight or ten per cent. of our trees during last winter, and we have trees that wintered through 1906-7, at Red Deer, and are vigorous. We have about 600 apple trees made up of some 150 varieties, and we hope to be in a position shortly to speak more definitely in regard to the varieties that will succeed. I have faith in the Duchess, Yellow Transparent and varieties of this class, while many of the Russian cross-bred apples are almost sure to succeed. I am informed on good authority that apples have been ripened at Medicine Hat, Magrath, Red Deer and Edmonton.

Our chief danger in winter is from the sudden spells of warm weather followed by equally sudden cold waves. In this vicinity and northward we are not as much exposed to this danger as farther south. Again, a danger to which we are exposed in lesser degree than farther south is the high winds. As time passes, protection from heavy loss may be secured through wind breaks of quick growing trees, such as cottonwood, Manitoba maples and so forth.

To sum up, I believe a success can be made of growing cultivated fruits of many kinds: (1) Because nature produces on the prairie in lavish abundance many kinds of these same fruits. (2) Because successes with strawberries, currants, gooseberries and apples are beginning to be recorded. (3) Because many of the failures, in apples particularly, may be traced to injudicious selection of varieties; (instances have been known where Northern Spys and Gravensteins have been planted.) (4) Because the climate is no more severe (minimum temperature last winter being twenty-one degrees) nor changeable than many parts of Ontario where apples are now regarded as a safe crop.

Thus the men who succeed in producing fruit in commercial quantities, will have a market at their door where strawberries and other small fruits seldom sell below fifteen cents a box (holding two layers of strawberries thinly spread), and where apples retail at \$2.75 a bushel box, to \$7.00 a barrel for "seconds." When one considers the enormous country to be supplied with fruit and the demand there will be for home grown fruit, trees and nursery stock, the prospect certainly looks good for the careful nursery man and fruit grower of Alberta.

Great as are the opportunities along many lines in this new country, one should not be accused of undue optimism or be charged with being carried away by the speculative spirit of the west, when he declares it is his belief that fruit-growing presents possibilities equal to any line of effort in pleasure and in profit—profit to the citizen who so succeeds, as well as to his nation.

Fall Work in Orchards

J. W. Crow, Ontario Agricultural College, Guelph

THE sowing of a cover crop in mid-summer is the first step usually taken by the orchardist to prepare his trees for winter. This year, however, the prolonged drouth materially



Protected from Mice, Rabbits and Sno-scald

By wrapping with light-colored paper. Building paper is very satisfactory. Banking with earth is necessary—not distinctly shown in illustration.

checked the growth of trees, even where cover crops were not sown, and trees will probably go into winter conditions well ripened and capable of enduring severe cold. It is too late to discuss the sowing of cover crops this season, but there is at least one common form of climatic injury which still can be prevented by simple and inexpensive means. Sun-scald is far too common, particularly in northern sections and, where trunks are exposed, does a great amount of damage. Low heading of trees would obviate the conditions which permit of injuries of this kind, and it would be well for prospective planters to give this phase of the question some thought.

Illustrations accompanying this article give more or less valuable suggestions as to methods of avoiding this trouble on trees already established. Protection from mice and rabbits can, in the case of small trees at least, be secured at the same time. Large trees can be protected from the ravages of mice by doing away with places which might become harbors for these pests, and the careful use of poison is also to be recommended. In sections where winter protection to roots is necessary through

absence of sufficient snowfall, care should be taken that the material applied does not become a home for mice. Protection similar to that used for the same purpose in other cases, and illustrated herewith, could be used where there is danger of this kind.

Peach growers on the sandy soil about Leamington, Ontario, make use of tomato vines and similar material as a preventive of deep and injurious freezing of the soil. The snowfall in that locality is very light, and it may be that others similarly situated could adopt this practice to advantage. This covering serves also as a moisture-saving mulch in summer and does away with the necessity of cultivating close to the low-headed trees in common use in that district. Many orchards are headed as low as ten inches.

Look well to the condition of the orchard drains at this season. Most apple, pear and plum soils require drainage, and in preparing the ground for trees thorough drainage should be provided if it is not already present. Intelligently cared for orchards will often repay many times over the cost of installing efficient underdrainage, and fall is a very favorable season for this work. Where underdrains are already in place, they should be kept in good working con-



Tree Protected From Mice by Wooden Veneer

Open to objection through injury which seems to be caused by formation of ice under the protection, otherwise very satisfactory. Veneers can be procured from basket manufacturers.

dition and with unobstructed outlets for surplus water. The writer has not seen a good orchard of any kind on wet

soil, and expert growers know that the better the drainage, the better also are the results secured.

The question of fall plowing in orchards seems to be a debatable one.



Suggestion for Use in Preventing Sun-scald

Any protection that can be held in place without providing a harbor for mice would be suitable

Early spring is usually considered the correct time as the inevitable injury to the root system can be most safely inflicted at that season. Less injury, too, is liable to occur through deep freezing, as the trees receive the benefit of any sod or other protective growth which may be present. Fall plowing is often recommended for heavy soils where it is desired to prepare a good seed bed for spring sown field crops. In orchard work, however, the case is different, as the trees are in many cases damaged by the otherwise beneficial deep freezing of the soil.

Canadian Currants

W. T. Macoun, Ottawa

There are several good red currants of Canadian origin, but the most improvement is found in the new black varieties originated by Dr. Wm. Saunders. In a bulletin on "Bush Fruits," recently published, we described sixteen of these which are now named. The best of them are: Saunders, Kerry, Eclipse, Magnus, Clipper, Climax, Eagle, and Topsy. Their value lies in their great productiveness and good quality. Most of them are seedlings of a seedling of Black Naples.

Making and Managing a Cranberry Bog

Thos. D. McGill, Middle Clyde, Nova Scotia

IN STARTING the business of cultivating cranberries, the first thing to consider is the right place to plant them. Cranberries require peat covered with sand. The vines will grow almost anywhere, but to make them pay, give them the best place available. It is best to have the peat only a few inches thick, as it then requires only about four inches of sand, but I grow them successfully where the peat is from two to eight feet in depth. This depth requires from six to eight inches of sand.

Choose a location that can be flooded at will. The vines will grow without flooding (I cannot flood one of my patches) but to make the business profitable one wants all the advantages.

USE ANY KIND OF SAND

The patch should be near some place where sand can be secured conveniently. Use clean sand, with or without gravel. I prefer the sand mixed with gravel, but there must not be any earth or clay mixed with it. A good test for the sand is to take a handful and press it hard for a moment and then let go; if it falls to pieces, it is all right, but if it holds together it is mixed with earth or clay, and will not do. The gravel that is usually put on our roads will not do, as it packs, being mixed with a kind of clay. The kind that I used was what they used to make plaster with, except that it was mixed in places with gravel. This has done better than the clean sand alone.

PROTECT AGAINST FROST

The next thing to think about is frost. To one not in the business, it may seem that this is not of much account, but it is one of the most important points to consider in Nova Scotia. To know how to select a place that will escape frosts, one must know something about frost. He will give it another name and call it "cold air." Now, cold air is heavy and acts like water. It settles in the low places. Hence choose a place that will drain off the cold air; that is a place near a place still lower. A lake answers well for this purpose. A low piece of ground is the next best. One foot makes a lot of difference. For instance, part of my patch is a foot higher than the other part. This year the high place escaped frost; the other part was injured. It is no advantage to have the patch on high ground. If it happens to be surrounded by hills or high trees, cut the trees away on the lower side, and if the hills are high on all sides give it up. I have one place that is ten feet higher than the other place, and all surrounded by hills. I had to give it up.

COVERING WITH SAND

After selecting the place, the next thing is to consider the best way to do

the work. The best way is to flood the patch a year. That will kill everything. Another way is to cover the top of the bog when the peat is only a few inches thick, with about four inches of sand. If the peat is from one to ten feet in depth, cover the grass and bushes with sand from six to ten inches deep. Some of the bushes may come through, but it is easy to pull them up. Before beginning to put on the sand, make a drain all around the patch three feet deep and two feet wide, and ditches across about 200 feet apart, two by two. I put most of my sand on in the winter on the ice. I blew up the sand with dynamite when the frost troubled me. The frost is not bad after you make a start and work every day. Another way is to lay a movable track

In planting I used a piece of steel like a large flat file with a handle on one end, and pressed the vines in the sand.

When building the dam have it high enough to cover over two feet the highest part of the patch. If the ice touches the vines it freezes to them and lifts them out the first time that the water rises. It requires two dams, one below the patch to flood and one to hold the water back until wanted.

FLOODING

Flood the bog the tenth of November or sooner, if you notice the frost touching any of the vines. Let the water off about the 6th of May. Flood occasionally until the 21st of June. Do not flood again until September unless you have



A Cranberry Bog that Yielded One Barrel to the Square Rod

in sections and use a handcar that a man can shove. Move the track as you cover the bog.

PLANTING THE VINES

I get my vines wherever I can find them. I found out that all vines would bear, but that vines that grow small berries when wild will be small when cultivated, perhaps slightly larger. The best plan is to get vines that grow large berries.

Plant the vines in rows two feet apart. Place the vines in little bunches six inches apart, with four vines in a bunch. The vines should be about six inches long. They do not require to have roots. As the tops grow, weed the patch to keep it clean. I used a small steel fork made all in one piece by a blacksmith.

strong reasons for so doing. I have injured the vines, destroyed the bloom and the berries by flooding in July and August to kill the cranberry worm.

After the vines begin to show blossoms the water will kill them. Water used rightly will kill all enemies except the "tip worm" that eats the buds, and so far I have found this one a hard one to fight. I am trying now by way of experiment, flooding my patch until the 10th of June, having the water shallow as possible, so it will be warm enough to kill the eggs.

PICKING

The second year the patch should yield a few berries; the third year, a small crop; the fourth a good crop. I pick on the 20th of September. I have a large

building built with floors six feet apart, and have the berries placed about six inches deep on these floors. I had a large crop one year—put ninety barrels in a pile three feet deep—and lost all of them by frost. They keep well in a building like the one I now have, and color well.

A friend of mine living in this district is better located as regards frost. He picks October 1st, and ships at once.

I have a machine to winnow the berries with and then they run into a barrel.

I then use sieves fifteen feet long and two feet wide, sitting on benches two feet high. The berries are put into the sieves and hand-picked. The dirt and little berries drop through the sieve to the floor. I then put the good berries into barrels holding two bushels and three pecks and ship them in small lots. It pays best to sell at once while the berries are in good condition.

One great cause of berries spoiling is that they sweat in the barrel. The cause of them sweating is that they get cold in

the barrel during a cold spell of weather, and then the weather suddenly changes. The berries being cold, the warm weather condenses the moisture in the air, and the berries get wet. The secret is to keep the berries at an even temperature, either cold or hot.

A well-cared-for cranberry bog will yield one barrel to the square rod. I have had pickers that could pick six bushels a day. The pickers pick in peck boxes and the foreman marks it down every time they empty them.

The Iris

H. J. Snelgrove, M.A., President, Ontario Horticultural Association

THE border of every garden should contain a bed of this singularly charming flower, whose name is derived from a Greek word meaning "rain-bow," and indicating its beauty. The iris is a native of the north temperate zone, inhabiting Asia, Europe and North America, and in the hands of skillful horticulturists has undergone marvelous development during recent years.

Owing to their diversity of origin, the varieties have a great diversity of color—ranging from pure white, through all shades of mauve and blue to dark purple. The flowers of all the varieties are large and handsome, often stately, exhibiting beautiful variegation and shades of color. All are hardy.

The life of the flowers varies from three to six days. They are fragile, but if cut before the petals unroll they will keep fresh longer.

There are growing in the Botanic gardens about 300 species and varieties,

covering a blooming season of more than two months. The iris is so easily cultivated that everyone who is fond of flowers should have a good collection.

One of the finest early blossoming iris is the orris-root (*Iris Florentina*.) This is an old-fashioned species but it is one of the best. The flowers are large, lavender or nearly white in color, and delicately scented. It begins to bloom during the last week of May.

The varieties of Siberian iris also blossom at this time, and while not admired by many, owing probably to their resemblance to our wild species, they are of very attractive shades of blue or purplish-blue, and are particularly useful in bog-planting. Some of them reach a height of four feet.

After the Siberian iris, the many varieties of the so-called German iris begin to bloom. Two of the best of this May-flowering class are Kharput and Purple Ring, with flowers of great size and bluish purple in color. Closely following these are the other varieties in many forms and colors. As with the lilac, it is difficult to reduce the list to a reasonable number, but the following twelve give a good range of color and are among the very best in the opinion of Mr. W. T. Macoun, Dominion Horticulturist: Gracchus, Darius and Maori King for combinations of yellow and brown, Madame Chereate, Cœleste and Lord Seymour, for mauve and lavender; Mrs. H. Darwin, for white; Couquette, for pink; Walneri, Sappho and Duchess de Nemours for different shades of dark and light purple; and Jacquinianna or Arnola for maroon or velvety purple.

While the varieties of *Iris pallida* might be first in the last group, they are kept separate to give an opportunity of mentioning three which should be in every collection if possible. These are Mandraliseuse, Racemosa and Lilacina.

After the German irises are over, or about the first week of July, the magnifi-

cent *Iris aurea* begins to bloom. This species in good soil will reach nearly five feet in height. It has large golden yellow flowers and is altogether a striking and beautiful iris.

The Japanese varieties now follow and continue blooming through most of July. A dozen varieties will give a good range of color. These are lovely flowers, the richness of color and form giving them quite an orchid-like appearance. These are more often sold unnamed than the German irises, and most of even the unnamed ones are very satisfactory. The Japanese irises are not expensive.

There is another late blooming iris which should be mentioned, namely, *Iris ochroleuca*, usually known as *Iris gigantea*. It is a very striking erect species growing from four to five feet in height. The flowers are white and yellow.

To protect the leaves from frequent changes of temperature in winter, coal ashes will be found satisfactory.



Major H. J. Snelgrove, M.A.

President of the Ontario Horticultural Association



Iris Germanica



A Well-Kept Walk Bordered by an Effective Planting of Annuals, Perennials and Fruits
Gardens of Sir Henry M. Pellatt, Toronto—Mr. T. McVittie, gardener.

A Beautiful Garden in Toronto

T. McVittie, Toronto

THE illustration on this page is a view of the east walk in Sir Henry M. Pellatt's flower garden, Toronto. As will be seen, the border on the left has for a background a hedge of *Hydrangea paniculata*. Next to this is a row each of gooseberry and black currant bushes. A space in front of these is planted with a collection of annuals and hardy perennials, which we endeavored to arrange so as to have a continuous bloom all summer.

Amongst the perennials in this border is one that deserves special mention,—*Geum coccineum*. This species grows about two feet in height; its spikes of bright scarlet flowers are very showy and fine for cutting, continuing in bloom from July until October.

The border on the right has for a background double hollyhocks and sunflowers, the front being filled in with annuals, such as ten-week stock, asters, verbenas, *Phlox Drummondii*, and so forth, and bordered with dwarf daisy snowball.

In all the borders are planted several varieties of ricinus, the large glossy foliage of different colors giving the whole a tropical appearance. We intend filling all the borders with hardy perennials, as we believe that they are more satisfactory for the garden because of their per-

manent character, and the naturalness of their beauty. The value of the majority of hardy perennials as cut flowers for the house is immense. There is no arrange-

ment of flowers more graceful, varied or capable of giving better effect and none so easily adapted to almost every kind of garden.

The Private Gardener

W. J. Wilshire, Montreal

EVERYTHING that tends to promote good will between gardener, employer and all concerned, helps in no small measure to make the gardener's work successful. It cannot be too strongly pointed out to the gardener, especially the young man taking hold of his first responsible position, that he has the making of the place largely in his own hands, and that upon his individual efforts, more than anything else, success or failure depends. Let him, therefore, bend all his energies towards making the place a success, in every sense of the word. Let him remember that while he is a servant, he is a responsible one, and in no sense to be classed with the laborer, or even the ordinary mechanic, and that his work will be judged by results, not by the number of hours he works in the greenhouse. He should not forget that he is hired as

a gardener and that all work in that connection should be his first consideration. It is a great mistake to try to run every department in the establishment. A temporary advantage may be gained by running around, doing work with which he has, strictly speaking, no concern, but if it is done at the neglect of his legitimate occupation, depend upon it, it will not pay in the long run. The gardener should always remember that the owners of the place have some rights, and that their opinions are occasionally entitled to respect. He should study their tastes, and cater to them as far as he finds it practicable, however absurd they may sometimes appear to be. It is astonishing how some people appreciate little things, such as the growing of a few common or simple flowers, to which they are particularly partial.

Every gardener should, if possible,

join at least one horticultural society, and give it all possible support. Nothing stimulates him like meeting his fellow gardeners in friendly rivalry at exhibitions. There is no incentive to greater efforts like striving to gain the foremost rank as a prize winner. Nothing keeps his interest in his work from flagging like striving to keep on top, if once he gets there. Some gardeners deplore the decline of horticultural societies, yet they do nothing to support them. They will blame the general public for the indifferent support they give to exhibitions,

while they themselves never lift a finger to help make them a success. When asked for reasons, they will talk of the indifference of their employers, or, perhaps, tell you they do not care for their plants to be taken to exhibitions for fear they will get spoiled. In nine cases out of ten, the true reason is not far to seek. Few people are so thin-skinned as to mind their plants suffering an occasional defeat. But they don't relish it too often, and the very fact that they object so strenuously to it becoming chronic, is conclusive proof that they are not so in-

different as they are made to appear.

Let the gardener once demonstrate his ability to hold his own with the best of them, and his employer's objections to exhibitions will rapidly disappear. He will be quick to see that instead of getting a lot of spoiled plants, he stands to gain considerably by the continual improvement in their condition, and far from being indifferent, his plants will be in evidence at every exhibition. The society will be stronger for that support, and the gardener the better for the experience gained.

A Garden Competition at Short Notice

AMONG the horticultural societies in Ontario that are doing excellent work is the one at Hespeler. Through the efforts of the society and particularly of its energetic officers, the townspeople are taking a greater interest in the improvement of their homes and Hespeler is fast becoming one of the most beautiful towns in the province. Instead of a horticultural show, as is usually held, the directors of the society this year decided to inspect the gardens of the members on short notice and to award prizes for the best ten. Only two weeks' notice was given. There was no time to make elaborate preparations for the judging. The scheme placed the judges in a position to see the gardens as they are ordinarily kept by the members. The judges of gardens were Messrs G. W. Tebbs, president of the society, Jas. Hyslop and Robt. Davis, and the judge of the school childrens' exhibits—given by the society, Mr. David Witmer.

One of the features of the competition was the generally well-cared for condition of fruit trees. In many cases, better fruit would result if the specimens on the trees has been thinned earlier in the year. Some trees were useless and had better be disposed of. The judges pointed out that more nut trees could be introduced on the grounds of the members with good effect; they would be both ornamental and profitable.

The pear scab was found in every part of the town. In one instance on a lawn which perhaps is one of the best kept in Hespeler, a Flemish Beauty pear tree, which is very susceptible to this disease, had been top-grafted with Bartlett, the new heads showing no signs of disease.

Most lawns were found to be well kept but many would be much improved by rolling. One member made a serviceable roller by filling an iron tube with cement, inserting crank and handle before the cement had set. On some lawns, the appearance was spoiled by allowing the immediate foreground to grow wild and the portions near bushes and trees to go unclipped and in places, to be worn bare.

The first impressions of such grounds, therefore, could not be good.

Some of the gardens were greatly spoiled in appearance, and probably in productiveness by their over-crowded condition. One in particular was very full of weeds. Poor vegetables in it were struggling upward seeking the light and air necessary for their existence. There was no room to walk except amongst the over-crowded plants and no vestige of room to wheel a barrow.

In many places, the sidewalks of the town and the walks around and about the homes had grass and weeds growing between the boards. This detracts from the general well-kept appearance of the grounds. A few handfuls of salt scattered between the boards would make a great improvement.

Some members had kept the grass outside the fences well clipped and had planted a few trees there. This is a pointer for others to follow.

As the judging took place during the first week of September, it was too late to see the grounds at their best but there was evidence to show that most of them had had a fine display of flowers. In only one case was a rockery observed. In Hespeler, where there are so many rocks and pretty stones, a few more rockeries, clad with ferns and mosses, should be seen. They would make a great improvement in shady corners where nothing else of importance will thrive.

Gardens that were comparatively small, with no pretence of supplying a "little of everything," were the best arranged and in the cleanest condition. A few vegetables, and those good, a few flowers, and those excellent, gave the best impression and probably the greatest satisfaction to their owners. In one garden, a new member was gardening for the first time and his little plot was kept in a way, in its planning and arrangement, that older horticulturists might well imitate.

In some instances, the judges noticed crops that grow tall indiscriminately planted between plants of lower growth.

The latter naturally get smothered and have not a chance to come to perfect maturity. This can be guarded against when planning the lay-out of the garden in the spring. There were comparatively few varieties of shrubs and bushes on the lawns and where these exist, they would be more effective if they had been grouped around the outside of the lawn rather than dotted here and there like plants in a nursery.

A few more creepers on the houses, a few more fancy window and verandah boxes and a few shade trees at the front of the properties would make Hespeler even more beautiful than now. The horticultural society is ready at all times to assist the townspeople in every way possible. It is the present intention of the directorate to carry on the same line of work next year. There are already evidences of a more than doubled membership. Many other societies in the province could follow with profit this scheme of inspecting gardens on short notice.

Basic Slag

What is the correct rate at which to apply basic slag to garden (vegetable) land?—Amateur, Halton Co., Ont.

The rate of application of basic slag depends upon, first, the nature and condition of the soil, and, second, upon the frequency of application. If the material were to be used only once in a long interval then it might be applied at the rate of 500 to 800 pounds an acre, but if it is intended to be used yearly not more than 300 to 500 pounds should be applied.—W. P. Gamble, O. A. C., Guelph.

Inspires Even Poets

I also your journal enjoy,
And wish you the strength of Rob
Roy,

For many long years,
'Mid everyone's cheers,
Its pages with pluck to employ.
—Wm. Murray, bard of the St.
Andrew's Society of Hamilton.

Ornamental Gardening in Southern British Columbia

G. A. Knight, Victoria

MOST conifers, evergreen and deciduous shrubs that grow in the temperate zone and some subtropical ones do well in the southern part of British Columbia. In conifers, *Araucaria imbricata*, *Cedrus Deodara*, *C. Libani*, *C. Atlantica*, cypress, retinosporas, arborvitae, many species of pine and others do well. The different varieties of holly do remarkably well. It is best to plant all of them in the fall as soon as there is enough rain to thoroughly moisten the soil. Root action will then commence before winter sets in and the plants or trees do not feel the effects of transplanting. If planted later in fall or in the spring they do not do so well. The spring usually is dry with high cold winds that cut and dry up the foliage when there is no root action.

Laurel, box, privet and so forth can be planted any time from the middle of October until the first of May with safety. Deciduous shrubs can be planted from the first of November to the middle of April. They are often planted earlier and later but it is not advisable.

Roses are often planted too late and do not give satisfaction. They can be planted from the middle of November until the last of February with safety. Much depends upon the season. If we get early frosts, the roses shed their leaves and can be transplanted earlier.

GARDENING IN VICTORIA

Victoria has a shortage of water and

many gardens that were beautiful a few years ago are now a disgrace to the city. Many citizens will not pay a high price for water for their gardens. Even if they are willing and reside on the higher levels, there is no force. This is a great mistake. There is plenty of water in the

mountains. It will have to be brought down and should have been long ago. As there are so many forests in this part of the country, the citizens of Victoria should have free water for their gardens and there should be no dusty streets and shade trees.



View of Flower Show Held in Victoria, British Columbia, Last August

From the *Victoria Colonist*



Rhododendrons Grow to Perfection in Victoria, B.C.

From the *Victoria Colonist*.

Victoria usually looks better in winter than in summer. In winter, the lawns are green, the evergreen foliage is clean and the beautiful holly with its red berries are bright and beautiful; some of the latter are really magnificent. The pyracantha, ivy and the different varieties of laurel are very beautiful. Some of them flower all winter. We also have some very fine specimens of *Araucaria imbricata*, usually called "monkey puzzle." Many of our native evergreens and deciduous trees and shrubs also are very beautiful.

Some varieties of pears will succeed where other fruits might fail. They thrive on clay soil, if well underdrained.

Did you learn anything new about gardening this season? If so, tell it to others through the columns of *THE CANADIAN HORTICULTURIST*.

THE CANADIAN HORTICULTURIST would like to hear oftener from readers who grow raspberries, blackberries, currants, or gooseberries. Send for publication a description of your patch and tell how you plant, cultivate, prune, pick and market.

Plant Protection in Winter

Wm. Hunt, Ontario Agricultural College, Guelph

OUT-OF-DOOR spring-flowering bulbs, especially the late planted ones or those that have not yet been planted, will benefit by having some protective material put over them some time before very severe weather sets in. Four or five inches of long, strawy manure, straw, long grass or autumn leaves placed over them prevents, to a very great extent, the bulbs from being lifted or heaved from the ground by sharp frosts and helps them to start into root action during early winter. Some evergreen spruce or pine boughs may be put over the manure, not only to keep the covering in its place, but also to do away with the unsightly appearance the manure presents during the winter when not covered with snow. In exposed places it may be necessary to fasten the covering down with wire or pegs to keep it in place.

Bulbs that were planted at the proper time—the second or third week in October—may not need protecting as much as the late planted ones, but even these will benefit by some protection, especially in sections where the snowfall is partial and of uncertain duration. Dutch hyacinths and crown imperials should have some protection, as they are not quite as hardy as tulips, narcissi, crocus, and most other spring flowering bulbs. Tulips and narcissi especially can be planted as late as the weather will permit, but are better planted earlier.

Where Japanese lilies, such as *Lilium auratum*, *L. speciosum rubrum* and *L. speciosum album*, are attempted to be grown out of doors, they should be covered with at least a foot in depth of strawy manure. These lilies, however, are seldom a permanent success as border plants even in the warmest parts of Ontario. About the second or third week in November is usually about the best time to put winter covering on bulb beds or borders.

BORDER PLANTS

Tender border plants, such as hollyhocks, *Campanula media* (the biennial cup-and-saucer plant), pansies, Shasta daisy, Chinese pinks or any other partially tender border plant that requires protection, must receive very different treatment from that recommended for bulbs and tubers. Too often they are treated exactly the same. Better no protection at all than to treat them in the same way as for bulbs.

After many tests and experiments for protecting border plants as mentioned, I have found nothing better than to place over the plants first some small pieces of brushwood, old raspberry canes or coarse trimmings from the perennial border. A few leaves may be sprinkled over and

among these a light covering of strawy manure about two inches in thickness, over the top of all. This method of covering plants not only collects and conserves the snow around and over the plants, but what is of far more importance, where it is essential to preserve and keep alive the top growth of the plant, the brush or trimmings mentioned allow of a circulation of air—something absolutely necessary to plant life even when dormant in winter—and prevents the plants from being smothered and often rotted and killed as they usually are by a heavy covering of leaves or manure alone. When the latter is applied to growing plants alone for protection, it becomes wet and soddened, then freezes solid, thus forming a solid mass of ice over the plant, effectually excluding the air and usually results in smothering and rotting the plant.

In our often changeable weather in winter, and more especially during the vagaries of late winter and early spring weather, I have found the light covering mentioned of great benefit to tender plant life in borders. Whilst admitting sufficient light and air to sustain plant life, it effectually excludes the hot sun, thus to a great extent preventing the alternate freezing and thawing so detrimental to plant life in late winter and early spring. Banking the snow over tender plants protects them materially during winter, but is of uncertain duration and benefit in early spring. There is no better protective material for plant life than dry light snow as long as it lasts.

BUSH ROSES AND SHRUBS

Budded or grafted plants or hybrid perpetual, or hybrid tea roses especially in most sections of Ontario, are benefited by some protection. A good plan is to first tie the bush up in a bunch, then before severe frosts bank some soil around the plant to about twelve inches in height in the shape of a cone. The base of the cone should be about twelve to eighteen inches in diameter and run up to a point near the stem of the plant at the top. The soil should be patted down firmly on the surface to pitch off the rain and moisture. A forkful of strawy manure thrown on the top of the cone of soil around the plant will help it. Roses grown on their own roots are hardier and less liable to be winter killed than are the budded or grafted plants. Own-root roses are a little slower at first in giving flowering results, but are much more enduring than worked or budded stock. I planted some own-root roses in 1883 that are still living and doing well every year, whilst the grafted bushes planted at the same time have been renewed several times since then.

The more tender kind of roses, such as hybrid teas, teas, and the polyanth and souper type of roses, require better protection than the hybrid perpetuals. Tying the top of these in a bunch and thatching them with straw, or first covering the plants with leaves and placing a sugar or flour barrel or some boards over them, makes a good protection. A nail keg would answer for small plants. Holes one inch in diameter here and there should be bored in side of barrel to admit air. A mulching of leaves or strawy manure six or eight inches in depth put on late in November around bush roses also helps to protect them materially.

The great point in preserving these tender roses is the exclusion of moisture, sun and frost as much as possible, and the admission of air to prevent dampness and mould or fungous diseases. Small tender-flowering shrubs can be treated in the same way as roses during the winter.

CLIMBING ROSES

Climbing roses, such as Crimson Rambler, Baltimore Belle and other tender varieties, should be taken down from the supports they have been growing on and the growth tied or pegged down close to the ground to keep the growth below the snow line as much as possible. Throw some straw or strawy manure about three or four inches in depth over the canes or growth so as to cover them about the thickness mentioned. Burlap or the rush matting used as a lining for tea chests are also good materials for wrapping around tender roses or shrubs, instead of using the manure or straw. Avoid putting the covering on too early in the season, as this induces field mice to make a home for the winter in the covering, often resulting in the destruction of the plants from the mice gnawing and eating the growth of the plant. Covering up too early also prevents the growth from hardening and ripening, the latter being a very essential point to secure to prevent the winter killing of plant life. About the end of November is usually early enough to cover up climbing roses.

Remove the winter covering from protected plants early in spring (about the first week in April), before growth commences. Choose dull, mild weather for the operation. Remove only a small portion of the covering, leaving a portion of the driest for a time so as to gradually inure the plants to their more exposed conditions.

If you are interested in what others tell you through the columns of THE CANADIAN HORTICULTURIST, write an article on your experience for their benefit.

What Amateur Gardeners Can Do in November

EVERYTHING that is accomplished in the autumn months is so much help towards the spring gardening. The garden should receive a general cleaning up. Fallen leaves may be



Some Saskatchewans-Grown Flowers

Exhibit of Mrs. Guinn at Prince Albert Exhibition

placed on the compost. Most other kinds of rubbish are better gathered and burned. Rubbish harbors insects and vermin, and the roots and stalks of plants may carry the spores of fungi.

Protect the bulb beds, border plants, roses and shrubs. Read the suggestions given in an excellent article on another page. Read, also, the practical article on the fall treatment of weeds.

Bulbs for spring flowering should have been planted before this but there is still time. As good results do not follow from late planted bulbs as from those planted earlier.

Roses may be planted early this month in favored localities. Fall planted roses will give a fair crop of bloom the following season.

If a top dressing has not been applied to the lawn this fall, see that it is done at once. Use clean manure or an earth mulch, as recommended in previous issues.

This is an excellent time to make a compost to furnish good potting soil for use next year. Gather some sods and place them in a square pile, grass side downwards. On each two layers of sods, place a layer of manure, five or six inches thick, and continue building until you think that you have sufficient. This will be ready for use next spring.

THE WINDOW GARDEN

When re-potting plants, do not forget the drainage. If you want best results, use new pots. Water immediately after re-potting.

The most important thing in the growing of house plants is watering. Many persons give their plants a little water every day. This is wrong. They should receive water only when it is required. This is indicated by a dryness in the surface of the soil and by the pot giving

a hollow sound when knocked with the knuckles. When applying water give a good soaking, then withhold until the condition mentioned returns.

Leave the pot hydrangeas outside until touched by five or six degrees of frost. This is necessary to secure the proper ripening of the wood.

Place fuchsias and pot roses in a fairly moist cellar. They require a period of rest.

Pot some bulbs; there is still time. Even though this work has already been done, a few potted now will give a later succession of bloom.

House plants should receive an occasional draught of fresh air but see that same does not fall directly on the plants. Increase the temperature in the house as the weather grows colder.

Some plants that do well in north or north-east windows are ferns, begonias, callas, *Asparagus plumosus*, *Primula obconica* and Chinese primroses. Plants that have more richly colored flowers require more sunshine.

Grow rex begonias in leaf mould and sand with good drainage. Water moderately and keep somewhat back from the light. Do not allow water to get on the leaves.

To enable all the plants in the window to secure light to the best advantage, arrange them with the smaller plants in

in boxes deep enough so that the tops of the celery will be, at most, only an inch or two above the top edges. Pack the celery closely with the roots in earth or sand. If the tops show signs of wilting, do not sprinkle them with water but apply it through a tube or otherwise to the roots.

Store the garden roots and potatoes. A few parsnips may be left in the ground all winter.

Store onions in a cool, dry cellar on slatted shelves where there is plenty of ventilation. A temperature just above freezing point suits them best.

Remove from the garden all weeds, especially those bearing seed pods, and burn them. Apply a dressing of manure and spade or plow it in. If the ground is not well drained, this is a good time to make it so.

FALL WORK WITH FRUIT

Protect the strawberry patch. While the plants may come through safely, they will be better for the protection in case of danger. Mulch them with clean straw. Manure is apt to contain weed seeds but it will do if nothing else is available. Do not apply the mulch until the ground is well frozen.

As currants and gooseberries are hardy, they may be planted now. Prune them any time after the leaves fall.

A few forkfuls of manure around the



Horticultural Exhibition Held in Winnipeg Last Summer Demonstrated the Possibilities of Manitoba Horticulture

front and the larger ones at the sides and rear. Turn them at least once a week to prevent one-sidedness and to give all sides a chance at the sunlight.

THE VEGETABLE GARDEN

Dig and store the late celery. If you have only a few dozen heads, place them

raspberry and blackberry plants will be advantageous. The same may be said of young fruit trees but do not do this to the latter until you have wrapped the trunks with paper and banked them slightly at the bottom. This is to prevent injury from mice.

The Fall Treatment of Garden Weeds

J. Eaton Howitt, M.S.A., Ontario Agricultural College, Guelph

PERHAPS in no place do weeds give more trouble or look more unsightly than in the vegetable garden. Many gardens are so badly infested with weeds that constant hoeing and cultivation is required throughout the season in order to keep them out of the rows and give the crop a fair chance. This continuous hoeing and cultivating is tedious, laborious and costly and might to a large extent be done away with and time and money saved by proper attention being given to the garden in the fall of the year after the crop has been removed.

Most of the weeds that are pests in the vegetable garden are annuals such as pigweed and lamb's quarters, or winter annuals like shepherd's purse. The majority of them mature seeds late in the fall after the ordinary cultivation of the garden has ceased and the seeds of most of them will germinate as soon as they are mature. The treatment, therefore, is to plow the ground as soon as the crop is removed to prevent the maturing of the weeds. This plowing must be shallow, not more than three or four inches deep in order to keep the weed seeds in the soil near the surface. Next harrow thoroughly to form a good seed bed and induce the weed seeds to germinate. As soon as a growth of young weeds is obtained cultivate them out. Repeat the harrowing and cultivating several times as by each stirring of the soil more weed seeds will be made to germinate and the young plants destroyed by the cultivation. Thus the soil will be to a large extent freed from the weed seeds that under ordinary conditions would produce a growth of weeds in the crop the following season.

It is a good practice, especially if the soil is apt to be a little damp and cold, to ridge up the garden last thing before the ground freezes. This will hasten the warming and drying of the ground in the spring and when the ridges are harrowed down any weeds that have escaped the fall cultivation will be destroyed.

If patches of weeds are allowed to seed in the fence corners and waste places near the garden, the foregoing treatment will be of little avail as the soil will be reseeded by every wind that blows. All such patches of weeds must, therefore, be cut before they mature their seeds.

Care must be taken not to use manure containing weed seeds. Manure suspected of containing weed seeds should be piled and allowed to heat thoroughly before being applied.

"A stitch in time saves nine." Such indeed is the case in dealing with garden weeds. A little time and trouble spent in the fall when the work is slack, a little

care given to the cutting of weeds in waste places at the proper time, and to the securing of manure free from weed seeds will save a great deal of time and

labor during the busy season of the year, thus lessening greatly the cost of producing a crop and adding materially to the margin of profit.

Variety Tests With Beans and Peas

H. S. Peart, Horticultural Experiment Station, Jordan Harbor, Ontario

AT the beginning of our work with varieties of vegetables, we endeavored to secure the leading varieties that have been placed upon the market. Although we grew 104 varieties of beans and 109 varieties of peas, many are entirely useless. We would suggest the following varieties as those being worthy of trial by our vegetable growers and kitchen gardeners.

Among the best early beans are Earliest Hopkins Red Valentine, Long Pod Forcer, Davis Kidney, Bountiful Bush, Early Red Valentine, Longfellow and New California Wax. Prolific German Wax, Dwarf Horticultural, Stringless Green Pod, Mighty Nice, Rennie's X X X Best Green, Imperial Golden Wax, Giant Stringless Green Pod, Early Red Valentine, ripen somewhat later, giving a succession of picking. Hodson's Wax was decidedly the heaviest cropper we had but New Pearl Wax, Black Wax, Refugee Improved and Large White Marrowfat are worthy

of further trial and test for late crop.

The peas which we would recommend are as follows. Early:—Briggs' Extra Early, Rural New Yorker, McLean's Little Gem, First of All, Prolific Early Market and Rawson's Clipper. Medium, —French Canner, Improved Stratagem, Telegraph, Burpee's Profusion, Heroine, Horsford's Market Garden, Mammoth Melting Sugar, Burpee's Quantity, and Dwarf Gray Sugar. Late,—Rennie's Queen, Matchless, Early Dwarf, Brittany Sugar, Bliss Everbearing, Long Island Mammoth, Black Eyed Marrowfat, Marblehead Early Marrowfat, Prodigious and Royal Dwarf White Marrowfat.

While there are a number of other varieties grown throughout the province, these are the ones that have proved to be the best with us this season. Growers should not form the opinion, however, that are are recommending these varieties only. Further tests may show that some of the others may be superior to those mentioned.

Forcing Tomatoes

W. S. Blair, Macdonald College

THE variety, "Frogmore Selected," was used in the experiments that were conducted at the Macdonald College, and recorded in the October issue of THE CANADIAN HORTICULTURIST. The benches contained six inches of soil. There is some difficulty in transplanting from a six-inch pot to this depth of soil, and we think that a six inch pan would suit the plant as well, and be better for transplanting on account of being shallower.

The plants were trained to a single stem, and supported with No. 10 wire stuck into the soil at one end and fastened to wires running over the benches. These supports were five and one-half feet long. To these the plants were tied with raffia whenever it was necessary. Strong coarse wool twine makes a good support. This twine is tied to a wire running across the bench below and to a similar wire above. The plants are tied to this the same as where wire is used.

The plants were trained to a single stem by pinching off all but the upper or primary shoot. In pinching off the side branches or suckers, it is necessary to go

over the plant every few days, for they make very rapid growth and unless removed when small they take considerable strength from the plant. When the plants in the pots are getting large it is advisable to use No. 10 wire, about eighteen inches long, as a support.

The temperature was kept at sixty degrees during the night, and in the day time during very dull weather, the house registered about this mark. During bright days the temperature would go up to seventy or eighty degrees according to the day and in the late spring sometimes to ninety degrees.

Tomatoes require plenty of fresh air in order to make stocky, thrifty growth; therefore, particular care in ventilating is necessary. Avoid cold draughts.

It is quite important not to water too heavily. The soil should be thoroughly wet to the bottom of the benches and kept moist but not saturated. In winter, two waterings per week are usually quite sufficient. As the season advances and the plants increase in size, more, of course, will be required. During the early growth of the tomato the atmos-

phere is better kept moist, but a dry atmosphere is the best for aiding in pollination, and preventing rot. The leaves of the tomato plant are better, and more healthy if not syringed at all.

As already stated, tomatoes require a dry warm atmosphere to facilitate pollination. The pollen is shed freely during the middle of bright days, and it is at this time that the plants require hand pollination. This point is a very important one, especially in northern districts, and unless considerable attention is given to it, the profits from the crop will not amount to much. Various devices are used for doing this work but we found a rabbit's tail, tied to a short stick, the best. With this one can go over the plants very rapidly and as the fruits were all regular and marketable, this device evidently is one that we can safely recommend for pollinating the plants.

MARKETING

The bulk of our fruit was sold on commission in Montreal. They were shipped in three- and four-pound till boxes, four boxes to a crate. This we found to be the best method for handling this fancy fruit, and all plants grown in greenhouses should produce fancy stock. The three-pound till boxes are the most convenient. The crates are made the depth of the till boxes and three three-inch slats put across top and bottom.

INSECTS

The white fly is the most difficult insect to deal with. To control it, we confine ourselves entirely to the use of hydrocyanic acid gas. This fly when disturbed, will fly around the plant and usually return to the same plant. On examination of the under side of a leaf, you notice what appear to be eggs, but on closer examination with a glass you will find that part only are eggs and part are nymphs. It takes about thirteen days for the eggs to hatch into nymphs, and when hatched, they move over the under surface of the leaf for a short time and then insert their beaks into the tissue of the leaf, taking on somewhat the appearance of a scale. These turn into the adult white fly in about five weeks time. This insect, owing to its sucking mouth parts, cannot be controlled by poison placed on the foliage, and you all know that fumigation with tobacco does very little good. We found that one ounce of potassium cyanide to 2,000 cubic feet was quite effective in getting rid of the fly. Of course the tightness of the house and the kind of night may make it necessary to use one ounce to 1,800 cubic feet, or even stronger. This gas is made according to the following formula: One ounce of high-grade cyanide of potassium, (ninety to ninety-five per cent.); one ounce (by measure) of commercial sul-

phuric acid; four ounces (by measure) of water.

For information as to how best to use this material, I would advise you to look up *The Canadian Florist*, issues of June 10 and July 3. In any case do not use this gas without first becoming familiar with its nature. It is a deadly gas and must be handled with care.

I have already stated that in order to run in tomatoes after carnations and violets it is necessary to sacrifice the latter part of these crops. As a general rule, the market demand for violets and carnations is not brisk after Easter and, therefore, we think it possible in many cases to discard part of these crops in favor of tomatoes. In no case do we think it advisable to bench tomatoes later than the latter part of March; in fact, I would say not later than the mid-

working over the soil and handling the plants. This is not a large job. In comparison with floral plants the tomato is not an expensive one to handle.

It is also a possible practice and one followed by some growers to plant in the carnation bench by simply removing a plant or two where the tomato is to be set and working up only a small area of soil for this purpose, thus getting some crop of the remaining carnations while the tomatoes are making their early growth. This, however, I would not advise. I do not think that there is any material gain by such a practice. The plant does not get as good a start, you cannot work over the soil in such a thorough and expeditious manner, and the carnations obtained do not compensate for injury sustained through working out the carnation plants later on.



A Thousand Tomato Plants in An Ontario Forcing House
Establishment of Chas. Darvell, Lambton Mills

dle of March, for the reason that the fruit comes into competition with southern grown tomatoes which are so plentifully put upon the market during June and July, and also with our own outside grown tomatoes after the middle of July. We are always sure of getting a better price for the greenhouse stock, but even so the prices drop materially after the middle of July, as is indicated by the returns from house No. 2, as given.

It is wise, also, to have the plants well advanced for benching, for in this way the crop is brought into fruiting much earlier. Our tomato house returned us 42.72 cents per square foot from March 12 to July 29. This we think is a good showing and much in advance of any returns that could be had from violets or carnations. You have, of course, the expense of cleaning out the other crop,

Whether the spring forcing of tomatoes can be followed profitably or not, depends upon the particular line followed by the grower. He often can work in certain lines at this season of the year to supply a special trade, such as bedding-out stock for instance, and possibly in some cases do better, but I am convinced that in a great many cases the forcing of tomatoes can be followed to much greater profit.

Results similar to those given here can be obtained by any florist or gardener under glass. The plants in this experiment were given only average treatment, for as we aim to run our houses along commercial lines, we cannot afford to do anything except what the average grower would find it necessary to do.

We obtained only the wholesale prices and did not cater to a special trade. We could have obtained higher prices by

placing our fruit on a special market, but we prefer in all our work to ship to a commission merchant, getting rid of our fruit on a general market, for in this we believe we can best study average existing conditions.

House No. 1 represents fairly well what can be done by following the

chrysanthemum crop with tomatoes. The returns from this house were 67.85 cents per square foot.

It is advisable to run in a considerable area to this crop rather than only one bench or part of a bench in different houses. We much prefer to give up an entire house to the crop for in this way

favorable conditions for its development can best be obtained. It is wise, also, to select the lightest house. Conditions modify practice in all lines of horticultural work; therefore, whether florists can work this business on a profitable basis or not, along with floral crops, is a matter for the individual to decide.

Harvesting and Storing Celery

J. H. Copeland, Chilliwack, British Columbia

LIFTING and storing celery for winter is very necessary in our British Columbia climate. Although not so severe as that of Ontario, yet we have at times quite sharp frosts which injure celery for shipping and, as time is precious in the short days of fall, we must try to get our crop harvested as speedily as possible.

I take a plow with one horse attachment and run a furrow down one side of the row and up the other, a trifle deeper than the celery. It is then quite an easy matter to cut the roots with a long handled shovel and have just the right amount of root on the plant. Then pick up the plant with the left hand and with the first finger of the right hand, quickly strip off the outside stalks until none but good sound stalks are left. This is very important as, if soft stalks are left, they soon begin to decay and spoil the whole head. Be sure to trim well.

If in danger of frost, we sometimes cache our crop. We lay it in straight piles of say, four dozen in a pile and throw a light covering of dirt over it. It will take no harm for a week or two. It is possible to get our crop out of danger by this plan very quickly.

To store for winter keeping, take two boards one foot wide and, say, sixteen feet long. Place them parallel about ten inches apart. Stand the celery upright between these boards. Have two or three lengths and when one is full, shovel dirt against it, packing it down nicely about eighteen inches thick until you get to the top of the board. Then draw up board and fill it up with dirt until you get the bank higher than the celery. Remove the boards and cover with a light covering of marsh hay or two narrow boards to keep the water off and to protect from slight frosts. When severe frosts come, shovel the dirt completely over the tops of the boards, but this is unnecessary only in very cold climates. In British Columbia we find it necessary only to bank close up to the boards. By this method we can keep celery in fine condition until quite late in the spring and with very little cost. The celery blanches perfectly in these trenches. For late keeping, it is best not to blanch too much before

storing. Try and store when dry for, if stored wet, there is danger of rotting in the trench.

Practical Celery Culture

W. J. Justice, Barrie, Ont.

The accompanying illustration shows part of my celery patch, which was grown ready for market in sixty days from planting out. The three bundles which I hold in my hand, as shown by

water forced through a small nozzle. The tank shown in the distance gives ample pressure and the work is done very quickly and cleanly. Less water is made use of than would be the case if a brush was used to do the cleaning.

About Strawberries

E. S. Hendry, Milton, N. S.

Towards the end of May, 1907, I selected a small plot of ground ten yards



A Celery Patch That Was Ready For Market in Sixty Days

the illustration, aggregated a weight of three pounds four ounces. They were not selected but taken as they came in the row and washed and trimmed ready for sale before weighing. This crop was grown on ground occupied by a crop of onions grown from Dutch sets. It was done in the following manner:

About two weeks before the onions were ready for bunching, I fertilized the spaces between every fourth and fifth row, and thoroughly stirred it into the soil with a narrow digging fork. I began planting the celery the first week in July, using good, stocky plants about four inches high. I always planted after four o'clock in the afternoon, and watered well the same evening. As soon as the onions were sold, all the ground between the rows of celery was dug, burying all weeds.

In washing celery for market, I use

square on which to grow strawberries. The ground had been well enriched for a garden the year before and received a light dressing of stable manure at the time of planting. The rows were laid off two feet apart and the plants set two feet apart in the rows. Each plant was allowed to put out two runners, the rest being pinched off, thus leaving the plants eight inches apart in the row. As the ground was weedy it required frequent cultivation in summer to keep the plot clean. Late in the autumn, I covered one-half of the patch with brush and left the remainder unprotected. The only difference that I could see in the spring was that those which were unprotected bloomed and fruited a few days earlier than the protected plants. The yield was much the same in two cases. From the whole plot I picked 150 quarts of choice berries which paid well for the trouble.

QUESTION AND ANSWER DEPARTMENT

Drying Prunes

Have prunes been dried in Canada? What system of evaporation is employed? Are evaporators made or put up in this country?—C. T., Welland Co., Ont.

We have not heard of prunes being dried successfully. It may have been done in British Columbia. Write to Mr. Thos. A. Sharpe, superintendent, Experimental Farm, Agassiz, B. C., for definite information on this point. Sun-drying can be depended upon only in countries that have long seasons of warm weather and where the air is dry and the nights are dewless. In some of our most favored fruit districts, however, it may be practised to supplement the work of the evaporator. If prunes could be dried in this country at all, it probably would have to be done by means of evaporation. There are many styles of evaporators on the market, from the small affairs capable of drying two or three bushels a day to the giant factory driers capable of turning out several hundred bushels a day. There are a few firms in Canada that manufacture or put up evaporators. Consult the advertising columns of THE CANADIAN HORTICULTURIST.

Spiraea Van Houttei

How can Spiraea Van Houttei be propagated?—W. D. L., Q'Appelle Co., Sask.

This species of Spiraea may be propagated by means of seeds sown as soon as ripe or stratified until spring. It may be propagated, also, by cutting either mature or green wood. The former may be taken at this season and stored until spring. Green cuttings are made in summer and handled in cold frames.

Seedling Cannas

Do seedling cannas attain their normal height the first year?—C. R., Peel Co., Ont.

Much depends upon the size of the seedling cannas when planted out and their culture, whether they will attain full height the first year. As a rule, they scarcely attain the full height the first season.

Wintering Wallflowers

Are wallflowers hardy in Canada; if not, would a protection of leaves and straw be sufficient or must a frame be used?—C. R., Peel Co., Ont.

Wall flowers are not entirely hardy even in the warmest parts of Ontario and are rather difficult to keep over winter. It might be possible to save them with a covering of leaves and straw as mention-

ed, but a cold frame would be safer. Throw some dry leaves or long strawy litter over the plants before severe winter sets in, about the middle of November, and place boards over the frame so as to exclude moisture. I have wintered them in this way tolerably well. The plants can also be lifted, potted, and kept in a cool window or even in a light cellar during the winter, and planted out again in the spring, or can be left growing in the pots.—Wm. Hunt, O. A. C., Guelph.

Funkias

What is the best position for *Funkia grandiflora*? I bought these for *F. alba* but they are blue. The clumps are large but soon after coming out the leaves were eaten by some insect. I have them in a south bed which is sheltered from the mid-day sun.—T. L., York Co., Ont.

Funkias like a partially shaded position where they get very little sun, the north side of a fence or building being a good position for them. They like a light, loamy soil with some leaf soil mixed with it. When planted in a sunny place, the flowers wilt very quickly. The hot sun also burns the foliage. Sprinkling the foliage with white hellebore powder, or spraying with a weak solution of Paris green water—half a teaspoonful of Paris green to a gallon of water, well mixed—has been effective in preventing attacks of the insect that eats the leaves.—Wm. Hunt, O. A. C., Guelph.

Fall Care of Asparagus

1. When should asparagus stalks be cut, why then and why cut at all? 2. Does the ripening of the seed draw much nourishment from the root? 3. What other operations are necessary in the fall?—W. A., Carleton Co., Ont.

1.—Asparagus plants should be cut as soon as they dry sufficiently to be broken down by a harrow or a rake. They should then be gathered and burned. There are various reasons for cutting them. Their removal in time will prevent the scattering of seeds. Furthermore, they have done their work and are not required longer. They must be removed in order to make it easier for harvesting the young sprouts the following spring.

2.—The early development of the seed is dependent indirectly upon the root for the nutriment required but the actual ripening is dependent more particularly upon the leaves and leaf stalks. As the seed is maturing, these latter portions of the plant give up a large part of the

elaborated food that had been stored within them and this passes into the seed. The making of food for asparagus leaves goes on throughout the active leaf period of the plant. The large percentage of this reserve store of material goes to the root for the growth of next year's shoots, and a small percentage is used up in the formation of the berries, which requires several months. All this time the leaves are doing a double duty simultaneously—namely, the making of the berries and the storage of the roots. It is probable that if there were no berries formed there would be a large amount of food stored in the root. There is no direct withdrawal of nourishment from the roots during the summer, for the formation of the berries.

3.—The surface of the bed should have a top-dressing of well-rotted stable manure, which should be worked into the soil this fall. Manure left on the surface until spring will prevent early growth. As asparagus is a spring vegetable, it is desirable to have the sprouts appear as early as possible.

Tomatoes Grown on Trellis

R. S. Hood, Galt, Ont.

The illustration shows some tomato plants that I had growing in my garden during the past summer. They are the Majestic variety. I planted them be-



Tomato Vines Eleven Feet High

side a wire netting trellis, and tied them to it as they grew, which they certainly did. They did not stop growing till Jack Frost took a crack at them on October 2nd. They were eleven feet high.

I took two of the plants to the agricultural show held in Galt, on October 1st and 2nd. They were quite a curiosity. The tomatoes were large, smooth and very solid. They were fine for slicing and yielded a bountiful crop.

The Canadian Horticulturist

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The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF BRITISH COLUMBIA, ONTARIO, QUE-
BEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND

FRUIT GROWERS' ASSOCIATIONS AND OF THE ONT-

ARIO VEGETABLE GROWERS' ASSOCIATION

H. BRONSON COWAN,

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6. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT

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Circulation Statement

January, 1907.....4,947	January, 1908.....7,650
February, 1907.....5,520	February, 1908.....7,824
March, 1907.....6,380	March, 1908.....8,056
April, 1907.....6,460	April, 1908.....8,250
May, 1907.....6,620	May, 1908.....8,573
June, 1907.....6,780	June, 1908.....8,840
July, 1907.....6,920	July, 1908.....9,015
August, 1907.....6,890	August, 1908.....9,070
September, 1907.....7,080	September, 1908.....9,121
October, 1907.....7,210	October, 1908.....9,215
November, 1907.....7,257	
December, 1907.....7,500	

Total for the year, 79,525

Average each issue in 1907, 6,627

Sworn detailed statements will be mailed upon application.

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We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

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Toronto Office: PETERBORO, ONTARIO.
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EDITORIAL

QUEEN VICTORIA PARK

One of the beauty spots of Canada is Queen Victoria Park at Niagara Falls. It compares favorably with any park of similar pretensions on the continent. All patriotic Canadians are proud of it and well they should be.

The high standard of excellence to which this park has been raised can be credited to the able management of the late superintendent, Mr. Jas. Wilson, and of its late chief gardener, Mr. Roderick Cameron. These men deserve much praise for their untiring efforts in making the park what it is.

It is understood that permanent successors to Messrs. Wilson and Cameron have not yet been appointed. This is due probably to the fact that it is extremely difficult to find men capable of maintaining the standard of the past few years. Some of the persons now connected with the park know more about politics than about gardening and landscape art. None but thoroughly qualified men should be considered in the appointment.

HORTICULTURAL CONVENTION

The annual convention of the Ontario Horticultural Association will be held at Toronto on November 10th and 11th. An excellent program has been prepared and the executive committee expects every active horticultural society in the province to be worthily represented at the sessions of the association which is calculated to be mutually beneficial to all.

There will be interesting discussions on the practical management of horticultural societies. Measures will be submitted, showing the necessity of an increased legislative grant to our horticultural societies, if they are to maintain their present ratio of progress. Reports will be presented giving the original results of experiments in the culture of fruits and flowers. The important work of civic improvement and the beautifying of home surroundings will be discussed and illustrated. Every suggestion that is contributed to advance the interests of the societies and thereby enhance the wealth and the beauty of the province will be gladly welcomed for the benefit of all the people. Steps will be taken to promote combination among horticulturists and their co-operation with the municipal and provincial authorities in extending their influence for good throughout the country.

It is hoped that no society receiving a legislative grant will be so dead to its responsibilities and opportunities as to fail to send a delegate to this auxiliary alliance of horticultural societies, whose annual meeting inaugurates a great forward movement in the noble work of education and extension in which they are engaged. The success of this convention means greater usefulness for our societies and greater love for and pride in our homes and our country.

THE COMING CONFERENCE

Fruit growers in all parts of Canada should now be preparing for the Dominion Fruit Conference promised for the winter or spring of 1909. The need for conferences of this kind is felt by fruit men everywhere and has been pointed out in these columns many times. Many letters from men prominently connected with the industry were published last year. It was then confidently expected that the Hon. Sydney Fisher would call a third conference last spring, similar

to the excellent and important one held in Ottawa in March 1906. While the minister had made no definite promise in respect to the date for same, the delegates to the 1906 conference gathered the impression that they might expect another in 1908. It did not come off. A live-stock conference was to be held and, according to the minister, this would interfere with the holding of a fruit conference; in other words, two agricultural conferences cannot be held in Ottawa during the same year. The fruit growers did not complain. They accepted the decision and waited.

We are now rapidly approaching the time for the holding of the third conference. At all conventions of local fruit growers' associations the matter should be discussed. Questions of national importance should be decided on for discussion. Among them we would suggest an enquiry into the working out of The Cold Storage Act as it affects the fruit industry. Scores of subjects equally important require attention. Readers of THE CANADIAN HORTICULTURIST are invited to send suggestions for publication. Let us all get together and plan together for the Dominion Fruit Conference in 1909.

In our issue for November last year, we referred editorially to the pilfering or petty stealing in orchards to which fruit growers are subjected. The practice is not confined to the country. It is followed even more in our towns and cities. Freeholders and householders in urban municipalities are constantly occasioned much annoyance and loss. Boys are the most troublesome. They locate the trees early in the season (many of them have known the best trees for years) and when the fruit is ripe, and often times before, they make wholesale raids. The remedy is in the hands of the owners and of the police. One prosecution, with possibly a brief term in jail as the penalty, if well advertised in the press, would do much to make the boys realize that stealing fruit is as great a crime as stealing money.

The progress of two of Ontario's largest and most active horticultural societies—namely, Ottawa and St. Catharines—is due in a large measure to the publicity given them by one or more newspapers in those cities. The success of any society depends to a great extent upon co-operation with its local press. There are many other horticultural societies in Ontario that would be better off if they could get their newspapers interested. How about Toronto for instance?

The drawing features of conventions are the papers and addresses that are read and delivered and the discussions that usually result. The paper and its discussion are equally important; in many cases, the discussion that the paper incites is the more valuable of the two. As the season of conventions is near at hand, it would be well for speakers to remember that it is not always the lengthy paper or address that is the most valuable. In the time allotted, the reading of the paper should not occupy more than half. It furnishes the subject for discussion and is, therefore, in effect, an introduction to the debate. Quality in an address is the first consideration. Oftentimes the quality is not as apparent as it should be until brought out by an analytical discussion.

I enjoy THE CANADIAN HORTICULTURIST very much, and I think that the people in the United States have something to learn in the way of putting out a practical magazine of that sort.—W. W. Bassett, Monticello, Fla.

A Pioneer Gardener

Among the 10,000 subscribers to THE CANADIAN HORTICULTURIST, there are a number who have been readers of the publication for many years,



Mr. Robert Walker

some of them since the first issue appeared, over 30 years ago. One of the latter is Mr. Robt. Walker, of St. Catharines, Ont., whose portrait is published herewith. He was one of the early subscribers, and has been a constant friend of THE CANADIAN HORTICULTURIST ever since. In a recent letter to the editor, Mr. Walker refers to some of his horticultural experiences, as follows:

"I take great interest in the letters from correspondents published in your valuable paper from time to time, and it occurred to me to enquire if any farmer or gardener had grown an acre of tomatoes previous to 1869. In that year I grew about one acre and a quarter of tomatoes. The crop was abundant and proved a financial success. Many visitors from a distance and neighbors came to see them, some out of curiosity and others for information. I had also about one acre of grape vines planted in 1871, mostly Roger's varieties, Concord, Allen's Hybrid, Ontario, Isabella and a few Montgomerys.

"I was told that neither tomatoes nor grapevines were grown to the same extent previous to the dates mentioned, and would be glad if you or any correspondent would inform me where in Ontario a similar or greater area was planted with tomato or grape vines before these dates. At that time I was gardener to the late W. J. McCalla, Esq., and the grounds were situated in the township of Grantham, county of Lincoln, and are now a part of the city of St. Catharines.

"In the year 1884, we had in the conservatory a century plant (*Agave Americana*) in bloom, the flower stem being 20 feet high. It was sold to the Horticultural Gardens, in Toronto. I have not seen any record of an Agave blooming in Canada since 1884. One bloomed in Rochester, N. Y., in 1869, and 50,000 persons paid to see it."

A South Australian Law

The Standard of Empire

Regulations issued by the government dealing with the importation of plants and fruit, the practical outcome of resolutions passed at the recent interstate conference, absolutely prohibit the introduction into South Australia of any grape-vine from any country or state. They also provide for the admission of other living trees, plants, or fruit from any other state, if accompanied by a government certificate declaring that they have been examined before being exported and found to be reasonably free from disease, and that the packages containing the exports are new or have been thoroughly disinfected by a specified process.

The regulations further prohibit the importation of any plant from a country where the insect *Phylloxera vastatrix* is known to exist, unless accompanied by a grower's declaration that the plant was grown further than 50 yards from any vine and that no phylloxera exists or has existed in the garden from which the plant came.

NOTES FROM THE PROVINCES

British Columbia

The fruit crop of the Okanagan Valley will be 50 per cent. larger this season than in any previous year, according to Mr. R. M. Palmer, Provincial Commissioner of Horticulture. The fruit growers should have a good year. The old orchards are bearing more fruit than ever, while many of the young ones are beginning to give returns. In the words of Mr. Palmer, "The increase in the fruit output will go on getting larger each year as the newer orchards develop but there is little or no danger of outstripping the demand. New markets are opening up. For instance, this year the Australian trade offered to take 40,000 boxes or 60 cars of apples of a certain grade but it has not been found possible to spare so much fruit. There is an unlimited market for high grade fruit also in the United Kingdom. Some of the large Okanagan firms contemplate making shipments to England this year.

"Furthermore, the northwest has 250,000 additional customers each year, which is one of the reasons why the question of distribution of the crop is such a vital one. With fresh consumers and fresh dealers, both wholesale and retail, springing up every year on the prairie, the question of marketing is one which requires both wisdom and care and not a little enterprise. It constitutes one of the most important problems in the fruit industry at the present moment. Although the industry has difficulties to face and problems to solve, everything seems in a prosperous condition."

New Westminster Fair

B. C. Saturday Sunset

The fruit exhibition was one of the most remarkable which visitors to the fair have ever witnessed. Yearly the number of entries increase but those in most close touch with this department were surprised beyond measure not only with the numbers which far exceeded those of last year but with the quality.

The exhibit was significant. Not only does it indicate that fruit growing is becoming a more and more popular avenue of revenue for the farmer but the fruit-grower is now getting the art down to a science and the products are the best than an ideal soil, an ideal climate and the best of attention can produce.

Victoria Exhibition

G. A. Knight

Although we have had two dry summers in succession, our fruit turned out remarkably well this season, and there were some grand displays of apples, pears and plums at the Provincial Exhibition in Victoria. There was one thing, however, that ruffled the tempers of many exhibitors and others and not without cause. Before the judges started to place the awards, one of our sub-inspectors of fruit pests started on a tour of inspection with magnifying glass in hand. Plate after plate of beautiful fruit that would have been prize winners was condemned. If he found the slightest trace of fungous disease, or oyster-shell scale, off he marched with the plates containing such pests and piled them in a corner of the

building. How desolate those beauties looked piled in that corner! Many thousand pairs of sympathetic, but indignant eyes were cast upon them in their six days of isolation, and also upon the many bad gaps that were made on the tables. It was outrageous work and should not occur again.

The display of grapes and peaches also was good. On the coast, however, these fruits have to be grown against a wall to get them to perfection.

Kootenay Valley, B. C.

H. W. Power

Contrary to general expectations, Kootenay growers did not this year realize the handsome profits from strawberry growing that past seasons have led them to expect. A combination of circumstances, over which no control could be had and which are likely to crop up at any time in any business, were responsible. In the first place, the financial depression in the neighboring republic lessened the demand there for strawberries considerably with an attendant falling off in prices and a big surplus of fruit of a perishable nature which the growers were anxious to get rid of at any old price, as long as they managed to get something. Consequently, a great deal of the surplus American berries found their way to the Canadian prairie provinces,—the only market, outside of the purely local one, open to British Columbia growers. After the results were totalled up it was found that the Kootenay growers would receive about 90 cents or \$1.00 a crate for their berries, this leaving a very small margin of profit. The amount of strawberries that can be produced upon a given piece of Kootenay ground is so heavy that a few cents more or less per crate will often mean a vast difference to the producer's bank account.

Strawberries were shipped this year from Gray's Harbor, near Crawford Bay, as far east as Prince Arthur, Ont., arriving at their destination in the best of condition. Extra choice Kaslo berries were sold in Calgary for \$2.50 a crate, being from 50 cents to \$1.00 more than the ruling market price.

KOOTENAY NOTES FROM E. W. DYNES

The continued progress of the fruit growing industry in Kootenay has made way for a new undertaking—the Kootenay Jam Factory. Their exhibit at the Nelson Fair was much admired and Earl Grey was heard to speak in complimentary terms of the enterprise of the owners. He backed up his words by ordering a case of Kootenay jam. If possible, fruit canning will also be engaged in.

The management of the fairs held at Nelson and Revelstoke were successful in obtaining the services of Mr. J. L. Porter of Hood River, Ore., as judge. In an interview, he stated that the people of Kootenay might well be proud of the progress they were making in fruit culture. When asked as to how Kootenay compared with Hood River, he said that the question could hardly be considered a fair one as Hood River had 15 years of progress and experience in her favor. However, as far as he had been able to test, with the varieties that were ripe, they were quite the equal of any he had seen anywhere.

Mr. Porter warned the growers that they

would have to be watchful and careful and keep their orchards clean by spraying, for he had noticed a few apples on exhibit that showed evidences of lack of spraying. He further stated that if the growers of Kootenay were to get the best results it would be necessary for them to concentrate upon a few varieties, the ones which they can grow best, and then market together and on a large scale.

Mr. Porter had struck a key note. The difficulties of selling and transportation are the problems that are worrying the growers the most just now. The markets are ready to buy their fruit, they have long since proved that they can produce the stuff, but the difficulties mentioned have yet to be disposed of. The operations of the local association along this line have been singularly unsuccessful during the present year and many ideas are being suggested, of which we shall hear more later.

The fruit crop this year is very good. A number of new orchards are coming into bearing which will increase the output materially. The Covert estate at Grand Forks will produce about 25 car loads of fruit. Some 15 cars from this district are being shipped to Australia. More were wanted but this was all that could be supplied of the varieties called for.

A noticeable feature of the past season was the splendid sample of peaches. Those on exhibit from Grand Fork at the Nelson fair could not be improved upon anywhere. One grower has signified his intention of planting five acres of peaches next spring. This, in view of the fact that even the most enthusiastic Kootenaians have not claimed the Kootenay to be much of a peach district, is very gratifying.

Saskatchewan

In the province of Saskatchewan one would hardly expect to find a vineyard, yet Mr. Walter Shreeve of Prince Albert has one in miniature. Although the vines are young they withstood the storms of last winter and are doing well. The varieties are Ives and Concord.

While not on a large scale, Mr. Shreeve has demonstrated in many ways what can be grown in small fruits of all kinds. His strawberries and raspberries grow early and are on the market earlier than those many points further south. He grows a large assortment of vegetables as well and has green peas in the local market in early July.

Annapolis Valley, N. S.

R. J. Messenger

While ideal weather is giving the farmers an excellent opportunity to pick apples, it is feared that the extremely warm weather will injure the keeping qualities of our fruit. In almost all cases it is fully ripe. Nonpareils, Baldwins and even Bishop Hopkins leave the trees very easily. We have been highly favored in the absence of wind. In quality and coloring the fruit is excellent. Never before in the writer's memory, have we had such clean, highly colored fruit. I picked some Blenheims to-day (October 19) that were as highly colored as Kings. The crop is, in most cases, showing up beyond the estimates of last month, and a larger percentage than usual will pack.

Buyers are beginning to wake up. A steamer was loaded at Annapolis about the middle of October with Kings, Ribstons, and Baldwins principally. The prices paid were \$2.00 for Kings, \$1.75 for Blenheims and \$1.50 for other varieties. Some winter fruit has been bought for \$2.00 a barrel, packed, but the farmers are slow about taking this figure for their best varieties.

Picking is about done and apples are moving to warehouses. Barrels are very scarce; a natural outcome of the underestimation of the quantity.

The New Brunswick Cold Storage Co. will receive quite a quantity of apples from this county. These will go into cold storage, be shipped across in season and sold in the English Markets.

The Horticultural Show at Kentville, in the opinion of authorities, excelled anything yet put upon the continent. The sound, sane judgment of Messrs. Smith and McNeill, who placed the awards, won the respect and admiration of all those who knew what commercial show apples ought to be.

Exhibition Dates Changed

The dates for the holding of the fifth annual Ontario Horticultural Exhibition have been moved forward one day, to enable the opening being held on the evening of Thanksgiving Day, November 9. It is expected that the exhibition this year will eclipse any previous effort of the association and will be the largest exhibition of its kind ever held in America.

The exhibition has outgrown Massey Hall and will be held this year in the St. Lawrence Arena, King Street, East, Toronto. This is the building that has so successfully accommodated the Horse Show, the Automobile Show, and various other large public functions. The exhibition will continue during the entire week. Each evening there will be a programme in which the regimental bands of Toronto will take part.

The entrance to the Arena and the Arena itself will be lavishly decorated with bay trees, plants, flowers, fruit and bunting. In fact it will be almost impossible to recognize the building after the decorators have finished their work. The Arena will be divided into four parts for the showing of flowers, fruit, vegetables and honey. These sections will be divided by colonnades and arches. The effect of the whole will be one of the most pleasing sights one could imagine. The decorated dining tables, set complete to seat eight persons, are expected to be one of the features of the exhibition. There is great rivalry among the Toronto decorators and caterers, to see who can set up the most artistic and correctly set dining table. This feature will attract thousands of ladies who are interested in matters of this nature. The whole building will be comfortably heated, and there will be free seats for those who wish to sit and enjoy the music and the beautiful flowers.

National Apple Show

Fifty thousand square feet of apples will be on display at Spokane, Wash., during the National Apple Show to be held in that city Dec. 7 to 12 of this year. It will be the largest exhibit of apples ever made and to house them, the big state armory building and an additional structure five times as large will be needed. Apples of all the standard winter varieties will be included in this display and every style of pack and wrap will be demonstrated.

Exhibits for the show are assured from all sections of the world where apples are grown successfully. North Carolina has established a cold storage plant for the collection of choice apples for the Spokane Exposition. British Columbia has appointed agents at Kelowna and other points in the fruit belt to collect apples for the National Show. Many inquiries also, have been received from Ontario and other Canadian provinces, and it is expected there will be a number of entries from this side of the boundary. There are two special contests for Canada, one having cash prizes of \$175

for the best two barrels or six boxes, one or more varieties, and the other is for the best exhibit of not less than three varieties of apples grown in the East Kootenay district of British Columbia, for which five acres of irrigated land is offered as first prize.

Manager H. J. Neely has made arrangements for the storage of apples received before the show opens, for which no charge will be made except in the carload contest. For this, a nominal fee will be charged.

Horticultural Program

The annual convention of the Ontario Horticultural Association will be held in the City Hall, Toronto, on November 10 and 11. The following program has been prepared:

NOVEMBER 10TH—AFTERNOON SESSION

2:00 p.m.—President's Address. 2:30 p.m.—Report of Secretary-Treasurer. 3:00 p.m.—Report of Superintendent.

3:30 p.m.—"Laying Out and Planting of Small Gardens," (with diagrams), by Roderick Cameron, Assistant Park Commissioner, Toronto.

4:15 p.m.—"Window Boxes, Baskets and Rustic Stands," by Wm. Hunt, O. A. C., Guelph.

4:45 p.m.—"The Best Methods of Keeping Summer-Flowering Bulbs and Tuberous Plants," by J. McPherson Ross, Toronto.

EVENING SESSION

8:00 p.m.—"Some Gardens Visited in England and Scotland," by R. B. Whyte, Ottawa.

"The Civic Improvement Movement in Ontario," (with lantern slides), by Professor Hutt, O. A. C., Guelph.

NOVEMBER 11TH—MORNING SESSION

9:30 a.m.—Election of Officers.
10:00 a.m.—"The Necessity of an Increased Legislative Grant," by Mr. W. Burgoyne, St. Catharines.

10:30 a.m.—Question box, grievances, etc.

11:00 a.m.—"Results of Distribution of Flower Seeds to School Children," by Mr. C. A. Hesson, St. Catharines.

AFTERNOON SESSION

2:00 p.m.—"Best Half-Hardy Tub Plants for Ornamentation of Grounds in Summer, and How to Keep Them During Winter," by Roderick Cameron, Toronto.

2:30 p.m.—"Perennial Borders," by W. T. Macoun, C. E. F., Ottawa.

3:00 p.m.—"Labor Saving Tools for Garden Work," by H. Simmers, Toronto.

3:30 p.m.—"Notes on Some New Peonies," by R. B. Whyte, Ottawa.

4:00 p.m.—"Increasing Membership," by a member of Galt or Brampton Society.

Vegetable Growers' Program

The Ontario Vegetable Growers' Association will hold a one-day convention on Thursday, November 12 in Toronto during the week of the Ontario Horticultural Exhibition. The following is the program:

MORNING SESSION

9:00 a.m.—President's Address. 9:30 a.m.—Discussion on President's Address. 9:45 a.m.—Report of Secretary-Treasurer.

10:00 a.m.—Address on "Onion Growing Industry," by A. McMeans, O. A. C., Guelph.

AFTERNOON SESSION

2:00 p.m.—"Notes on Irrigation," by W. T. Macoun, C. E. F., Ottawa.

2:30 p.m.—"Onions," by A. McKenney, Essex.

3:30 p.m.—"Tomatoes," by Mr. Turney, O. A. C., Guelph.

4:30 p.m.—"Combating Insects and Fungous Foes of Vegetables," by T. D. Jarvis, O. A. C., Guelph.

Grape Culture Again

Editor, THE CANADIAN HORTICULTURIST:—In last August number appeared an article entitled "The Summer Care of Vineyards" by G. H. Carpenter, Fruitland, Ont., upon which I would like to offer a few friendly thoughts. First, he says, "The great point in summer cultivation is to keep down everything but the grape vines." The deduction seems to be that the grape vines must be encouraged to spread sprawling over the ground in obedience to their own sweet will. Is this Mr. Carpenter's method? If it is, we would like to say that there is a better method and that Mr. Carpenter has scarcely touched grape vine culture.

Again, under the heading of "Summer Pruning," he says: "All sprouts should be kept down. Summer pruning is advocated by some growers but we have not followed the latter practice." From this we would gather that Mr. Carpenter is a long way off if he has not followed this practice. He is scarcely in a forward position to figure as a teacher in grape vine culture but judging from the samples of grapes we sometimes get from that region and knowing something of their method of culture, I suppose that Mr. Carpenter would be considered not far astray. But allow me to say that the laxity and carelessness of some grape growers so called should be a crying shame on the industry.

As Mr. Carpenter knows, or should know, the highest and best results cannot be obtained in the vineyard without a thorough and most complete and most persistent system of summer pruning, no matter what the other conditions may be. What, for instance, is the value of grapes grown upon vines completely let alone and allowed to run over the entire ground as they may

incline? The better the environment, the worse the results. The grape vine is a most tractable and flexible thing of life and can be made to do and be almost anything that one may desire.

Grape vines should be intelligently pruned summer and winter. Practice the most advisable, careful and persistent system of training and pruning possible to be had at any price. See that your bunches are full and perfectly developed and your berries completely filled with the best and most nutritious and tasty juices of the highest value to be had, which is aided by good Canadian soil and climate. If you cannot do this, be willing to retire from the business and admit others who will minister willingly to the growing wants and needs of the intelligent people of this great and growing country, who know a good thing when they see it.—B. Gott, Strathroy, Ont.

MR. CARPENTER'S REPLY

Editor, THE CANADIAN HORTICULTURIST:—There are some expressions and statements in an article by me on grape culture that appeared in the August issue of THE CANADIAN HORTICULTURIST that apparently are unintelligible to Mr. Gott of Strathroy. At least, judging from his criticisms of the article in question, that appear elsewhere in this issue, such would seem to be the case.

In the first place Mr. Gott has put upon my expression, "keep down everything but the grape vines," a construction that for a novice in grape culture would perhaps be pardonable. Coming from Mr. Gott, however, who I believe has been an enthusiastic horticulturist for years, the criticism is rather superfluous. He fears that if this were carried out to the letter that the vines would have a tendency to spread

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"sprawling over the ground," certainly an undesirable result. Mr. Gott evidently forgets that the article referred to deals only with the summer care of a vineyard. The winter work when most of the pruning and the tying is done is not touched upon. In a vineyard that is systematically pruned in winter and the vines properly tied up either to two or three wires according to the system of pruning followed, the vines will hardly form a network over the ground during the summer even though no summer pruning be practised. Reading further in the paragraph in which the expression appears, Mr. Gott will see that it has reference to cultivation only, the point being that clean cultivation should be followed in summer.

From my remarks on summer pruning, Mr. Gott concludes that I am in a poor position to minister to the needs of the grape growing public. In that article I was not posing as a teacher. I described a method of summer care of a vineyard that has been followed in our vineyard with most satisfactory results. We have not been hampered in our cultivation operations by the vines sprawling all over the ground.

Mr. Gott is right when he says that a systematic method of summer pruning should be followed. He is wrong when he imagines that a complete network of vines would obscure the ground if such a system were not practiced. If such has been his experience then his system of winter pruning and tying is faulty. As I said in my previous article we remove all sprouts and trim back the vines to a certain extent in order to retard vine production and thus promote the production of fruit, I believe, as I have said, that if all non-bearing wood were removed even better results would be obtained. No doubt this is what Mr. Gott refers to when he speaks of a most complete

and systematic system of summer pruning. That we do not do this can hardly be attributed to laxity and carelessness as Mr. Gott would infer.

The aim of a producer of any commodity should be to produce the highest grade possible. This is what we strive to do in the matter of grape production. In this respect the method we have followed has availed us. It may appear crude to such eminent horticulturists as Mr. Gott. True, it can be improved and will be improved; yet, the fact that it has been the means of enabling us to produce a good quality of fruit, is evident that we are not so very "far off" as Mr. Gott would lead us to believe.—G. H. Carpenter, Fruitland, Ont.

The University of Maine has ordered, at the Quebec fruit station, Village des Aulnaies, several hardy and productive varieties of plums. Professor Gardner, formerly of the Macdonald College, wants to try, at Orono, Me., the varieties that do so well at this Quebec station. Mr. August Dupuis, the director, has been successful in growing fruits at this station that at one time were thought to be impossible to grow so far north.

We have recently been advised by T. J. Poupart, of Covent Garden, London, Eng., that they have just taken a large fruit warehouse, which they claim is the finest in London, and that they are in a better position than ever to care for the constantly increasing trade of Canadian apples, on the London market. The great quantity of apples consumed in London and vicinity, makes London one of the leading centres in Great Britain for Canadian apples. This firm transact their business by private treaty only and, therefore, are in a position to sell each mark on its merits. Their advertisement appears on another page.

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Apples on Lake Ontario

Alex. McNeill, Chief Fruit Division, Ottawa

Everywhere there is evidence that, though orchards in the counties from Halton to Hastings bordering on Lake Ontario, as mentioned in the August issue of THE CANADIAN HORTICULTURIST have been giving excellent returns, the orchardists are very poorly informed in their business. There is very great need for educational work throughout the whole of this district. By way of practical recommendation I would suggest:

1. That main tile drains, at least, be run through the depressions in the orchard. It would be much better if the whole ground were thoroughly under-drained, but if only the main drains were put in it would improve matters very much.

2. That cultivation be commenced as soon as the frost is out of the ground and the cover crop sown not later than the middle of July.

3. That all orchards, old and young, be sprayed at least three times with the poisoned Bordeaux mixture, the first spraying to be made as soon as the first green is seen; the second spraying as soon as the blossoms have fallen; and the third spraying ten days or two weeks later. Better still, spray first with lime and sulphur between March 20th and April 20th or not later than just before the buds swell, and then three times with the Bordeaux mixture as directed above. Either of these systems of spraying, even if followed mechanically, would hold in check nine-tenths of the insects and fungous diseases which infest the orchards.

4. That an improvement be made in the system of pruning which would keep the outside of the trees thinner and would grow

more new wood on the larger branches towards the centre of the tree.

5. That experiments be made in the low headed form of tree. This would have to be done consistently throughout the whole of one young orchard, and the implements of culture would have to correspond to the low-headed form.

6. Organization among the apple growers, not only for the purpose of selling their fruit, but for the purpose of buying supplies and for the purpose of rendering themselves in a measure independent of the itinerant apple buyer. The Inspection and Sale Act should be widely distributed and carefully read by every apple grower; otherwise a certain class of apple buyers are apt to make false representations to the financial loss of the growers. I was unable to find a single grower who had sold under a contract drawn up by himself. Where contracts were signed they were drawn up by the buyer and wholly in his interest. If a written contract accompanied every sale, with the stipulation that the grades No. 1 and No. 2 referred to in the contract would mean Grade No. 1 and Grade No. 2 as defined by the Inspection and Sale Act, much annoyance and serious financial loss would be avoided.

Apples Sold Privately

On another page of this issue may be seen the card of Mr. A. S. Chapin, 75 Yonge St., Toronto, one of our largest apple exporters whose firms a representative of THE CANADIAN HORTICULTURIST had the pleasure of calling upon during a visit to the Motherland. In Liverpool, Mr. Chapin represents the firm of D. Crossley & Sons, who have been in business in that city over 50 years. This firm sells exclusively by private sale

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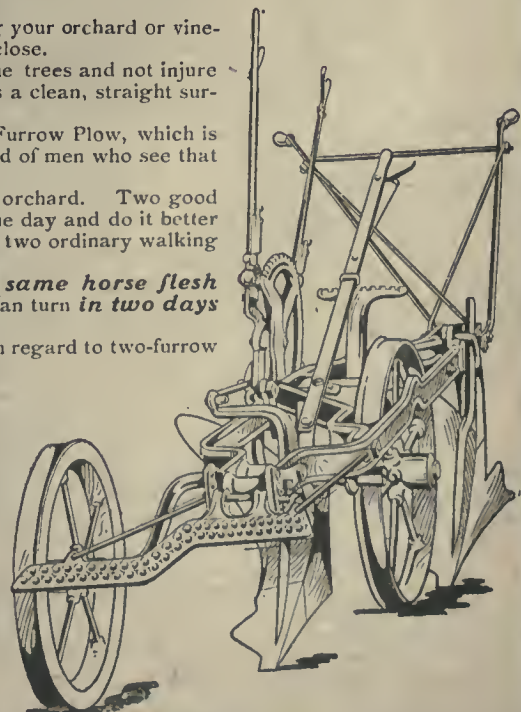
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and has a large connection with the inland cities. By this method, the apples are examined thoroughly and sold on their merits, and, when the sale is made, the buyer must take delivery at once, thus avoiding "slacks" and "wets" which are so common on a declining market when buyers are allowed until four o'clock next day to take delivery.

In Manchester, Mr. Chapin represents the North of England Fruit Brokers, which is one of the two firms that are large receivers of Canadian apples. Their method of selling apples is by auction and these two firms practically supply the Canadian apples for Manchester and the surrounding country which, in a radius of 12 miles, has a population of 8,000,000.

In Glasgow Mr. Chapin represents Thomson & Mathieson and in London, D. D. Pankhurst. These firms have each a very large retail trade in connection with their auction business and are their own auctioneers. Their method is to put a reserve bid on the apples when they put them up at auction and, if this price is not reached, the apples are "bid in" and sold next day by private sale, thus giving the shipper two chances.

Any of these firms are among the best and most reliable firms in the business. Canadian fruit shippers will do well to correspond with Mr. Chapin before consigning.

We feel that we cannot be without *THE CANADIAN HORTICULTURIST*.—T. H. Farley, Elgin Co., Ont.

A new catalogue has been issued by The Canadian Nursery Co., Montreal. It contains an excellent descriptive list of fruits, ornamental trees, shrubs and plants that will well repay its readers in the wealth of information given alone. See the advertisement of this firm on another page of this issue.

An Appreciation

Editor, *THE CANADIAN HORTICULTURIST*:—Your September issue was one of the best of your many good ones. I was especially struck with Inspector Carey's vigorous treatment of what many consider a worn-out subject. Two points he mentioned are worthy of emphasis: First.—Picking period. I hold that all apples should be off the trees at least by October 25th. In my own experience I aim to have everything picked up to winter apples and all work cleared away by October 10th, so that the next fifteen days may be spent wholly in picking winter. Second.—Though I have never done so, I should consider it a very short-sighted policy for any farmer to sell his apples on the trees and allow a stranger to come in and pick them, since a careless picker could do a lot of injury to a tree in the way of breaking branches and tearing off fruit buds.

Another thing I like about *THE CANADIAN HORTICULTURIST* is that it is not wholly given to the commercial side of horticulture. The articles on the care of lawns, flower gardens and beautifying the home appeal very strongly to me. I regret that such a paper is not taken by every household in Canada, for if there is one thing more than another that should be cultivated to a greater extent among, not only our rural population, but our town and city dwellers, it is the beautifying of the home surroundings. In institute work as well as home practice, I have always tried to show that the best way to keep our boys and girls at home is to make that home attractive. In this the hints in your paper have been a help.—R. J. Messenger, Bridgetown, N. S.

I like *THE CANADIAN HORTICULTURIST* and do not forget to say so to any person that I think might be interested.—W. J. Justice, Barrie, Ont.



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POULTRY DEPT.

Conducted by S. Short, Ottawa

It is most beneficial for fowls, especially those that have been kept in confined quarters all summer, to have the run of the garden and lawn now that garden work is practically over. All late vegetables, such as celery, cabbage, and the various root crops, should now be harvested and the fowls allowed to scratch without restriction. Should there be a likelihood of the tulips or other bulbs recently planted being disturbed by the fowls, have a load of fresh manure dumped in the garden at a convenient distance from the forbidden ground and that will usually absorb the attention of the industrious hen. Provision should now be made to supply the flock with green food during the winter. Cabbage, mangels, beets, turnips, small potatoes or unmarketable apples are all excellent and can be obtained more easily and cheaper now than later in the season.

In the October issue, it was recommended that an early and severe weeding out of the flock should now take place if winter eggs were to be obtained. With the removal of all old hens and late chickens should be included the very fat hens, no matter what age they may be. Very little handling will soon indicate these birds and hens that are very fat now will remain so and, in fact, are likely to increase in that respect when they are confined in more or less cramped winter pens. Fat hens are usually lazy and greedy. They are, as a rule poor winter layers. They lay in spring and early summer, but lay

much below the average during the season. Their eggs usually will not hatch. In most cases, the eggs have very thin shells and are sometimes broken by the other hens that lay in the same nest. Fat hens frequently drop their eggs during the night on the roost boards and the egg is broken and eaten by the hens. The egg-eating habit is thus formed. Weed them out.

Properly-prepared fat hens make an excellent dish, either steamed until tender and then browned over in a hot oven, or stewed and made into a pot pie. On a cold November day, neither of these dishes is to be despised.

A common trouble among fowls at all seasons is indigestion or crop-binding. If taken before the bird is too weak, this may easily be cured. The first symptom is the refusal of the bird to eat. If this should be noticed early in the morning, the fowl should be caught and if the crop is hard and distended, indigestion is the trouble. The patient should be given water at once. This is done by holding the bird under your left arm, holding open the bill with the left hand and pouring down the water from a spoon with the right. After giving about a third of an ordinary teacup of water, knead the crop until it is soft and pen up the bird where it cannot get food till given water. Repeat the treatment for two days, morning and evening, and if after that period the crop has not become empty, a surgical operation is necessary. This is done by cutting a slit about an inch long in the crop, a little to the right of the feather line on the left hand side. Remove the contents of the crop, wash it out with warm water and then sew up with white thread, first the inner skin of the crop and then the outer skin of the breast. Put the bird in a warm place and the first day give a light meal of soft

food and, should the bird on the second day, show normal condition, let it run with the others. In summer time, this operation is rarely unsuccessful. In winter, 50 per cent. succumb but they would have died in any event and many a fine bird has been saved by the foregoing treatment.

Do you take THE CANADIAN HORTICULTURIST? If not, send us 60 cents to pay for your subscription from now to the end of 1909, or \$1.00 to pay for your subscription to the end of 1910.

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LISZT & CO., handsome carved legged square piano, with over-strung scale, carved lyre, serpentine base, 7 octaves, in first-class condition; an elegant piano in every way. Regular price \$450.00; special at... **\$123**

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RAINER & CO., Guelph—Nice carved legged square piano, rosewood case, 7 octaves, with over-strung scale, carved lyre; in good condition, and an instrument that will give good satisfaction, thoroughly overhauled. Regular price \$375.00; special at..... **\$129**

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Next Dominion Conference

The satisfactory results that have accrued from the Dominion Fruit Conference held in Ottawa, March, 1906, make it probable that the conference promised for 1909 will be of even greater value. Now is the time to start planning for it. Innumerable problems of national importance require a national understanding. Some letters already have been received by THE CANADIAN HORTICULTURIST pointing out the need for another conference and suggesting subjects for discussion. Others are requested. Send suggestions for publication. The following ones indicate the general trend of opinion on this matter:

Mr. Norman E. Jack, Chateaugay Basin, Que.:—"Another Dominion Fruit Conference should be held soon, as the last one was attended with such good results. Considering the rapid development of the fruit-growing industry in the Dominion it seems to me that every two years is not too often for the holding of such conferences. The results which have followed the proper defining of the grades of apples would warrant similar conferences every two years, as the beneficial results have far overbalanced any expenditure. More could be done in regard to the transportation and refrigeration problems, and if some means could be devised whereby the advantages of the co-operative system could be more widely advocated, it would be a great boon to the fruit interests. It is to be hoped also that at the next conference something will be done to separate the fruit interests from the dairy interests, and that we shall have a Fruit Commissioner appointed who will devote his entire time to the better development of this rapidly growing industry."

Mr. D. Johnson, Forest, Ont.:—"There should be a Dominion Conference of fruit

growers held at Ottawa this winter in order to talk over and come to conclusions on questions affecting the fruit industry of Canada as a whole. Each of the provinces have their annual conventions of growers and the good effect that such meetings have had on the industry no one will deny.—If the Dominion Government is really desirous of meeting the requirements of the people, they surely should take advantage of such opportunities to get in touch with them and to legislate to promote their interest. The transportation and marketing of fruit are two questions which could well be discussed with great profit. Freight despatch is so slow and uncertain that it is impossible to ship tender fruit in that way to distant points and express rates are so high that it is equally impossible to ship beyond a certain radius. Thus it will be seen that the growers are unable to ship their fruit beyond a certain point and the consumer must do without, simply because the transportation facilities are so bad. Markets are also required and, if such are found, nearly everything else will right itself in the efforts to reach it. Many other questions could be discussed and worked out with great value to the country as a whole, if the Government would do as it should and hold a Dominion Conference this winter."

The Dominion Government commissioned Dr. Jas. Fletcher, Dominion Entomologist, to make an inspection last month of the orchards on Indian reservations in British Columbia.

A well-prepared circular describing the Herbert raspberry has been issued by the Ottawa Nurseries, 253 Bell St., Ottawa. It gives the experience of a number of leading growers and of experiment stations with this excellent variety. Write for a copy.

Codling Moth Preventive

A preventive of the codling moth, which is as troublesome to apple growers in Australia as it is in Canada, is reported as the result of experiments made for some time in the vicinity of Sydney, reports Mr. J. S. Larke, Canadian Trade Commissioner for Australasia. Small bunches of herbs, thyme and pennyroyal, are fastened securely around the stem of each apple tree. Over this is placed a close rain-proof bandage to protect the herbs from rain. This is said to be a perfect protection. The moth crawls up the tree until it reaches the herbs and then returns to the ground where it is destroyed by ants.

It is claimed that trees protected in this way had perfect fruit, while others not treated were worthless. The advantage over the commonly used system of bandages is that there is no necessity for frequent visits to the bandages and destruction of the moths.

Blueberries in Nova Scotia

R. J. Messenger, Bridgetown

One uncultivated fruit, in which considerable business is done in Nova Scotia, is the blueberry. From the western end of the province in particular, large quantities are shipped yearly to Boston.

Raw, stewed, pied, puddinged—in any shape or form of edibility, the blueberry is delightful. If time and space would permit I would write columns in eulogy of this dear little fruit.

This fruit grows without cultivation. In some of our pastures the bushes threaten to drive out the dairy cow.

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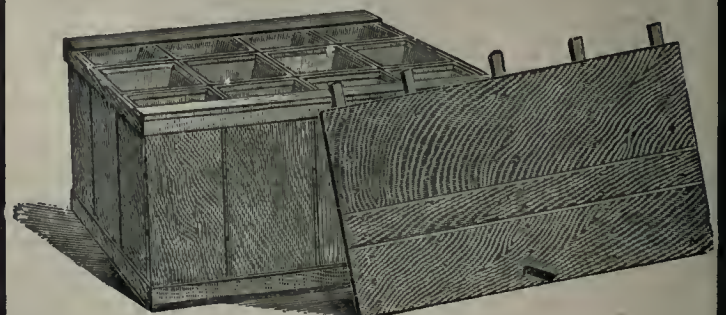
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Fruit Growers' Program

The convention of the Ontario Fruit Growers' Association to be held in Toronto on November 10 and 11, promises to be of great interest and value. The following is the program, subject to changes and additions:

NOV. 10—MORNING SESSION

President's annual address.—A. W. Peart, Burlington. Reading of correspondence and appointing of committees.

Report of Standing Committees: New Fruits.—W. T. Macoun, C. E. F., Ottawa; H. L. Hutt, O. A. C., Guelph; E. Morris, Fonthill. Co-operative.—Jas. E. Johnson, Simcoe. Transportation.—W. H. Bunting, St. Catharines.

"Toronto Fruit Market."—H. St. C. Fisher, Queenstown.

AFTERNOON SESSION

"Commercial Spraying of Apple Orchards."—D. Johnson, Forest. Discussion by J. C. Smith, Burlington; J. C. Harris, Ingersoll; Jas. E. Johnson, Simcoe.

"The Apple Maggot and Blister Leaf Mites."—Prof. Wm. Lochhead, Macdonald College.

"The Handling of the Strawberry Plantation."—S. H. Rittenhouse, Jordan Harbor. Discussion led by A. E. Sherrington, Walkerton.

EVENING SESSION

"Results of Orchard Surveys in New York State."—Prof. Chas. S. Wilson, Cornell University, Ithaca, N. Y.

"Observations in the Use of Fertilizers in German Orchards."—Prof. R. Harcourt, O. A. C., Guelph.

NOV. 11—MORNING SESSION

"The Commercial Status of Our Standard Varieties of Fruits."—Open discussion by

members as to the present value of our common varieties, their susceptibility to disease, etc., on the following: Apples, peaches, pears, grapes, plums.

"Prevalent Fungous Diseases of Ontario Orchards."—"Fire and Twig Blight" and "Peach Yellows."—Prof. M. B. Waite, Pathologist, United States Department of Agriculture, Washington, D. C.

"The Shipment of Early Apples and Tender Fruits to Great Britain."—J. A. Rudick, Commissioner Cold Storage, Ottawa.

AFTERNOON SESSION

"Observation by the District Representatives of the Department of Agriculture of Fruit Conditions": 1. Essex County.—A. McKenney, Essex. 2. Prince Edward County.—R. M. Winslow, Picton. 3. Simcoe County.—R. S. Mortimer, Collingwood. 4. Ontario County.—J. H. Hare, Whitby.

"Marketing Our Fruit"; "Packing."—Elmer Lick. "Packages."—H. L. Roberts, Grimsby. "Markets."—E. G. H. Pattison, Winona.

"The Western Provinces as an Outlet for Our Fruit."—J. W. Crow, O. A. C., Guelph.

At the annual meeting of the Pomological and Fruit Growing Society of Quebec, to be held at Macdonald College, Dec. 2 and 3, it is expected that there will be a large fruit exhibit. The premium list has been issued. Write to the secretary, Peter Reid, Chateauguay Basin, Que., for a copy.

Readers of THE CANADIAN HORTICULTURIST in the western provinces and in British Columbia should not forget the coming convention of the Northwest Fruit Growers' Association to be held in Portland, Ore., Dec. 2-4. The Oregon State Horticultural Society will meet at the same place on Dec. 1.

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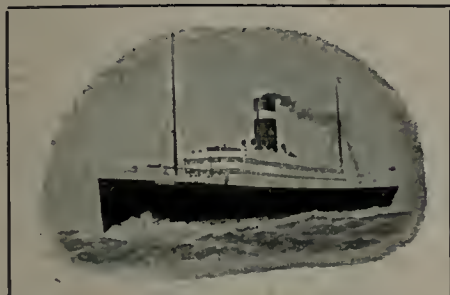
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POMERANIAN	Saturday, Nov. 7th	ONTARIAN	Saturday, Nov. 14th	CORINTHIAN	Thursday, Nov. 19th

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Horticultural Convention

The following paragraph of the constitution of the Ontario Horticultural Association regulates the number of delegates that each

society is allowed to send to the annual convention to be held in Toronto, Nov. 10 and 11: "Each society shall be entitled to be represented by two delegates, and any society having a membership exceeding 100 shall be entitled to an additional representation in the proportion of one delegate to each 100 or fraction of 100."

The program for the convention is published on page 248. Since that page went to press, the following additions and changes have been made: Mr. J. M. Dickson of Hamilton will speak on the "Representation of Our Association on the Boards of the Canadian National Exhibition and of the Ontario Horticultural Exhibition." The question of increasing membership will be discussed by Mr. J. F. Watson, Ottawa, and Mr. J. P. Jaffrey, Galt. The paper on "Results of Distribution of Flower Seeds to School Children" will be read by Mr. Jas. A. Wiley, St. Catharines, in place of Mr. Hesson. Mr. H. H. Groff, Simcoe, will read a paper on "Scientific Plant Breeding."

Ottawa Flower Guild

A flower guild has been organized in Ottawa. Its objects are twofold,—to teach the children to love flowers, and further, to show them how they may assist the Ottawa Horticultural Society and the Ottawa Improvement Commission in beautifying the city; and secondly to furnish them with several means of recreation. Plants were distributed to the children with directions for their culture.

The plants and flowers grown by the children will be exhibited at the flower shows of the horticultural society. Many prominent citizens have promised to give prizes. It is expected that the Guild will become a big factor in the work of improving and beautifying the Capital City.

Plant Eats Insects

Picton Gazette.

Did you ever see a plant eat flies and even "Daddy Longlegs?" A plant of this description, of the orchid species is to be seen among the collection of curious plants that belong to Mr. W. T. Ross, Collector of Customs, Picton, Ont. In his hunt for plants, out of the ordinary run of things in plant life, Mr. Ross has accumulated many most interesting specimens, for he is a well-known and enthusiastic horticulturist, but perhaps the most interesting study is his latest addition, known as the Venus fly trap, a carnivorous plant. These plants grow only in one known place in the world, North Carolina, and are unique of their kind. It is about the oddest thing imaginable to see their small oval leaves, bend inwards at the centre stem running through the leaf, and with their teeth—like edges—close in upon a fly or spider, and then proceed to devour the insect, thus engulfed.

Capt. S. Musgrave of the British army who has just returned from a trip of exploration in Colombo has seen much of these plants and made a study in dissecting them. He declares he found that this species of plant had digestive organs, a brain and nerve ganglia, like human beings.

Get a copy of our catalog of horticultural books. Sent free on request. Write to our Book Department.

I received the fountain pen, which you sent me for securing two new subscriptions to THE CANADIAN HORTICULTURIST, and am well pleased with it. I shall continue to make your paper known wherever possible. —E. Campin, Port Hope, Ont.

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The Canadian Horticulturist

Vol. XXXI

DECEMBER, 1908

No. 12

Fungous Diseases of Ontario Orchards*

M. B. Waite, Pathologist in Charge, Investigations of Diseases of Fruits, U. S. Department of Agriculture

I AM called upon to discuss two very common and destructive diseases of the orchard,—peach yellows, the most dangerous and deadly disease of the peach tree; and pear blight, the contagious and destructive disease of pomaceous fruits. Neither of these diseases is preventable by spraying. I will precede this discussion with a short account of the treatment of some of the prevailing fungous diseases in this section and will tell something of sulphur as a fungicide, particularly the new self-boiled lime-sulphur mixture.

SULPHUR VS. COPPER AS A FUNGICIDE

Although both sulphur and copper have been known to possess the property of killing fungi for many years, sulphur antedates copper as a practical fungicide. It was, in fact, in use long before the year 1885 (?) when the word "fungicide" was coined. The discovery, widely published in 1885, by Millarde of Bordeaux, France, of the remarkable fungicidal properties of the copper-lime mixture, put copper far in the lead as a useful fungicide. Since that time it has been brought out that the practicability of this mixture depends not alone on the copper. It is the peculiar combination of copper and lime and its resulting properties that gives it its value. Since that time much experimenting has been done with other compounds, mainly of copper, yet to this day no compound of copper has been found approaching it in value. The peculiar properties of Bordeaux mixture are that it is harmless or nearly harmless to most plants when sprayed on them during active growth, it sticks tightly for weeks and even months on the plant after it is applied, it is nearly insoluble and yet will dissolve just enough in rain water to give this sufficient copper to kill most fungi. There is no trouble in finding poisons and chemicals that will kill the fungi; the problem is to find poisons sufficiently insoluble so as not to hurt the plant and yet continually to give off just enough of the fungicidal material to do the work when needed.

With sulphur that we have had available for use, either the extremely soluble compound, like the boiled lime-sulphur wash, which scorches or burns living plants, the liver of sulphur, which has to be used extremely dilute when applied to the foliage and which is readily soluble so that it washes off with rain, or else the comparatively insoluble flowers of sulphur. The latter substance is not sufficiently active as a fungicide to be used alone.

SELF-BOILED LIME-SULPHUR WASH

Recently, through the investigations of Mr. W. M. Scott, of the United States Department of Agriculture, the peculiar

ery was made in the season of 1907 and very satisfactory results were obtained. In the season of 1908 they were repeated by Mr. Scott and his assistants, and by some other investigators and great success was attained in the prevention of several of our leading diseases. This gives us practically a new fungicide which is in many ways a rival of Bordeaux mixture. It does some of the things that Bordeaux mixture will not do; on the other hand, it does not quite equal Bordeaux mixture as a fungicide, and unless a better form is discovered than we have available now, this mixture should not displace the standard Bordeaux, except where the latter is injurious.

The important point has been gained that in the treatment of peach diseases where the use of Bordeaux mixture or any other copper compound had to be abandoned we still have a most excellent and thoroughly practical fungicide. From the results obtained from recent experiments, it is quite probable that on the Ben Davis and possibly even on the Baldwin apple, where russetting by Bordeaux is a serious matter, we can still spray our fruit with a fungicide that will give satisfactory results.

Furthermore, attention should be called to the fact that this sulphur spray, while slightly inferior to Bordeaux mixture, is a most excellent insecticide, especially for certain types of insects. It is the deadly enemy of mites and scale insects. The self-boiled lime-sulphur mixture was tried as a scalecide on dormant trees and put in the background by the more active form of sulphur in the boiled lime-sulphur wash, but it looks as though we had here an excellent scalecide, thoroughly satisfactory for use when the trees are in foliage, in addition to its other merits as a fungicide. It is expected that the entomologists will work out the exact status of this spray as an insecticide. However, at the present time they do not advise its use as a dormant spray.

FACTORY-BOILED LIME-SULPHUR

Recently several of the chemical manufacturing firms have put on the market stock solutions of the boiled lime-sulphur wash. These are more perfectly pre-

A Suggestion for Christmas

Just now you are trying to think of suitable Christmas gifts for some of your friends. Why not send them a year's subscription to THE CANADIAN HORTICULTURIST? It is something that will interest as well as educate—a valuable aid to those interested in the growing of flowers, fruits and vegetables. Think about it. See our special Christmas announcement on inside front cover.

value and desirable properties of the self-boiled lime-sulphur wash have been discovered. This mixture is very simply made by adding the flour or flowers of sulphur to the lime before slaking. No heat is used except the heat produced by the slaking lime. The value of the preparation was discovered by Mr. Scott in seeking a remedy for brown rot of the peach. He found not only that this mixture was an excellent fungicide, preventing the brown rot and black spot of the peach, but when properly made with a small quantity of soluble sulphides, it could be applied to peach foliage with perfect safety. For the first time, then, we have a practicable fungicide, with fairly good sticking qualities, slowly soluble and not injurious to peach foliage. It may also be sprayed on the sensitive Japanese plums. This important discov-

*A portion of a paper read at the Toronto convention of the Ontario Fruit Growers' Association, held last month. Pear blight and peach yellows will be dealt with in the next issue.

pared, at least from a chemical standpoint, than the ordinary home-boiled wash. They remain in perfect solution and require only dilution with water to be ready for immediate application. Recent experiments have shown these preparations to give excellent results in the summer treatment of the more resistant plants, like the apple, cherry and others, in comparison with Bordeaux. If the factory boiled solutions can be put on the market with sufficient economy they may have very wide-spread use, not only in supplanting the self-boiled wash and the boiled wash, but also in competing with Bordeaux mixture.

APPLE SCAB

The principal fungous disease of the apple in Ontario, preventable by spraying, is the apple scab, caused by the fungus *Venturia inaequalis*. This disease, which is very susceptible to the influence of wet weather, is only preventable in a moist season by thorough spraying. The first treatment should be made when the trees are in bud, the second when the last petals are falling, the third about two weeks later, the fourth two or three weeks later, and the fifth a month later, making the last treatment occur the last week in July or about August 1st. The fungicide giving the best results for this is the standard Bordeaux mixture, say the 5-5-50, or, if the spraying is done copiously, the 4-4-50 formula will answer about as well. (Note.—It is assumed that the author has reference to wine measure and not Imperial. Fifty gallons of the former are equivalent to about forty gallons of the latter. Editor.) The new self-boiled lime-sulphur wash gives good commercial results when sprayed on the same dates and if we had nothing better would be considered entirely satisfactory but the Bordeaux mixture slightly exceeds it in efficiency. It is slightly more persistent, sticks on the fruit and foliage more thoroughly, so that the longer intervals between the latter sprayings are slightly more effective. To either of these mixtures one-quarter of a pound of Paris green per barrel or from one to two pounds of arsenate of lead may be added for codling moth and other insect enemies.

PEAR SCAB

The pear scab, caused by a related fungus, is amenable to the same treatment. In both of these diseases, the factory-boiled lime-sulphur has been shown to give good results when diluted sufficiently so as not to burn the foliage immediately after application. One part to forty, or perhaps one part to fifty, concentrated stock solution is the dilution required. If these preparations can be brought to the standard and rendered non-injurious, they will make a very con-

venient spray mixture for this purpose.

CHERRY LEAF BLIGHT

Both the sweet cherry and the sour cherry over a large part of Michigan and New York states have been very severely defoliated by the cherry leaf blight fungus, *Cylindrosporium padi*. This disease seems to have increased in severity during the past few years until cherry growing without spraying is almost impossible. Further south some of the varieties of cherries have been killed off, or rendered worthless commercially, by the repeated attacks of this leaf blight. Some of the varieties of plums, notably the Lombard, are so badly defoliated by the same fungus as to require treatment. Fortunately two or three thorough sprayings with either the standard Bordeaux mixture or the self-boiled lime-sulphur give results in preventing this disease. Two or three treatments, the first made after the trees are in full leaf and the second and third following at intervals of three to four weeks, give most excellent results.

PEACH CURL LEAF

Probably the most important fungous disease on the peach in this province is the curl leaf. This is also perhaps the easiest of all fungous diseases to prevent. The plants can be rendered almost entirely free from it by a dormant spraying. From the fact that the trees are dormant when treated, almost any fungicide can be used with entire satisfaction. The treatment with standard Bordeaux mixture of the 5-5-50 formula is slightly superior to any other. Even the simple solution of copper sulphate, three pounds to the barrel, answers fairly well. Probably the best general treatment of the peach orchard is to spray it with the standard boiled lime-wash, since this will prevent not only the leaf curl but the San Jose scale and certain other insect enemies. The factory boiled lime-sulphur apparently answers just as well in this case. This single treatment can be made either in the fall or early spring. It can be given just before the buds begin to swell in early spring or, if this interval is too short and for other reasons it is more convenient, it can be applied in the fall after the leaves are off.

PEACH BROWN ROT

In certain wet seasons where the heat and moisture are unusually great, peaches are attacked by the brown rot fungus. This disease is especially prevalent and destructive in the humid Southwestern United States, from Pennsylvania southward, but occasionally it does bad work in the lake states and in Canada. Fortunately through the investigations of Mr. Scott with his self-boiled lime-sulphur in the season of 1907, this malady is now added to the list of commercial-

ly controllable diseases. On account of the entrance of the fungus through weather cracks, caused by moisture, and through insect punctures, it is rarely possible to control more than ninety per cent. of the disease, but to one who has seen the frightful destruction of a crop attacked by this fungus, ninety per cent. seems large.

The standard mixture for this disease is made by placing five pounds of stone lime in a barrel, pouring over it five pounds of flour or flowers of sulphur and slaking the lime with just sufficient cold water to do a good job and give a creamy, pasty mass. This should be stirred occasionally and the barrel kept covered for twenty minutes with gunny sacking, or some similar protection. At the end of that time it should be diluted with cold water to the capacity of the barrel. It can be used at once or kept for several hours diluted but should not be kept in concentrated form as it gains in soluble sulphides.

BLACK SPOT OF PEACH

The treatment for Monilia or brown rot fungus entirely prevents the black spot of the peach, often a serious disease. In fact one or two treatments for this disease alone will often pay a good profit. This treatment should be made about three weeks after the blossoms have fallen when the young peaches are, say, three-quarters of an inch long, and can be followed by a second one three or four weeks later.

Canadian Fruits

W. T. Macoun, Ottawa

Two out of the three best American gooseberries were originated in Canada. These are Red Jacket, or "Josselyn," as it is now called in the United States, and Pearl. The former is distinct from any other named sort, but the latter is apparently identical with Downing, although it is not so. Pearl has given better results at Ottawa than Downing. Both the Red Jacket and Pearl were originated by Dr. William Saunders. The former is a cross between Downing and Ashton's Seedling, and the latter a cross between Houghton and Warrington. Several other seedlings not so productive as Pearl resemble it very much.

There have been several strawberries of great merit originated in Canada. Of those in the trade at the present time the most noted is the Williams. Probably nine-tenths of the berries raised in the Niagara district are of this variety, which is of good size, very productive and firm. Its chief defect is a white tip.

THE CANADIAN HORTICULTURIST would like to learn the opinion of growers on low heading of trees.

The Handling of the Strawberry Plantation*

S. H. Rittenhouse, Jordan Harbor, Ontario

I START to prepare my land for a strawberry crop one year before the time for setting the plants, by manuring the field and planting a hoe crop, such as potatoes, roots, tomatoes or corn. The cultivation of this hoe crop during the previous year puts the land in excellent condition, destroys the weeds and otherwise makes the soil suitable for giving good results when the strawberries are planted. After the removal of the hoe crop in the fall, I plow and put on a heavy coat of manure. In the spring I start cultivating early, working the manure into the surface and getting the land into the best possible shape for the setting out of the plants. On my soil, which is a deep sandy loam, plowing is not necessary and, in fact, I never plow manure anyway.

When the field is thoroughly prepared, I mark both ways, making the rows three feet, six inches apart and the plants in the rows from eighteen to thirty inches apart, according to the variety. Some varieties make an excellent stand and form a splendid row when set thirty inches or even three feet apart.

PLANT SELECTION

I consider that one of the greatest elements that contribute to my success is my choice of the plants at the time of setting. The usual custom among strawberry growers is to take plants from the sides of the rows; this, of course, gives them the small and weaker plants.

In procuring plants, I take up the whole row, taking only the best and strongest plants. This plan is along the line of plant breeding, a subject which should receive greater attention by practical fruit growers. Plants should always be taken from a new row, a row grown the previous year and one that has never fruited. Some growers will sometimes take plants from the side of a row that has given a crop. This should never be done.

WHEN AND HOW TO PLANT

The time for setting plants depends upon the season. I do not favor too early setting, preferring to wait until the danger of heavy frost is over; in our district, from May 1st to 15th, and have had good results from plantations set as late as May 24th. Cool, cloudy days are preferred, but we do not wait, when the soil is in proper condition, only taking great care not to expose plants and roots to wind and sun.

After the plants are prepared by digging and selecting the best and trimming off dead leaves and runners and carefully straightening out the roots and placing them compactly in an ordinary eleven-quart basket, I use a man and a boy for setting. The man runs a spade into the soil, producing a cut of six inches, at an angle of forty-five degrees. Instead of drawing the spade out of the soil, he simply presses it away from him to raise the soil up, and then the boy places the plant behind the spade. The spade is withdrawn and the pressure of the foot completes the operation.

Great care is taken to get all the roots

same as if planted in the mark made by the marker.

CULTIVATION

As soon as the plants are set, we commence cultivating and hoeing, repeating this process every week or ten days until fall. We cultivate crossways just as long as we can do so without injury to the new runners.

While hoeing the first time, we invariably use the fingers around the plant, adjusting the soil so as to prevent any soil lying on the crown or leaves, and always keep the blossoms nipped off whenever they appear. It is strict atten-



Harvesting Strawberries in the Niagara District—New Plants in the Foreground

Plantation of Mr. S. H. Rittenhouse, Jordan Harbor.

the soil from covering the crown. I try to get the crown of the plant about on a level with the surface of the field.

Of late years, I have preferred not to set the strawberry plant into the little track or furrow made by the marker as it places the crown of the plant too low down and makes it difficult to keep the crown from being covered while hoeing and cultivating. Therefore, I plant in one corner of the angle formed by the marker and am careful to plant in the same corner of the angle all across the field. When I am through setting, the plants are in perfect rows both ways just the covered and at the same time prevent

tion to small details that makes the difference between a profitable crop and an unprofitable one.

Towards fall, when the runners have begun to spread, instead of dragging them with the cultivator to prevent the rows from getting too wide, I cut them off with a roller plow coultter. It is quite a simple thing to attach a rolling coultter to each side of the cultivator with clips and it does its work nicely and prevents the too thick setting of plants along the sides of the rows, which is not desirable.

I have had some trouble with cut worms but have not done anything to protect against them, except good culti-

*One of the papers read at the convention of the Ontario Fruit Growers' Association held in Toronto last month.

vation of the ground the year previous when under the hoe crop. I do not mulch nor use any protection whatever for the winter and have had little trouble with my plants winter-killing.

The following spring we do not cultivate before picking the crop, simply cutting the weeds between the rows with a hoe and pulling out of the rows by hand whenever they appear. Great care should be taken not to have many weeds to remove at time of blooming as much

damage may be done to the crop at this time by disturbing foliage and blossoms.

CROPPING

We invariably crop the plantation two years, simply preparing for the second year by narrowing up old rows after the first crop is picked and by continuing the cultivation and keeping the rows free from weeds by hand the remainder of the season. Spraying with Bordeaux mixture is very important, especially

when the plantation is kept over for a second crop.

I have said nothing about varieties as it is impossible to lay down hard and fast rules. It is absolutely necessary that each grower study his own case, what is best suited for his particular district and market. The Williams is the great commercial strawberry at Jordan. But it would not be so well adapted for a grower who was catering to a fancy local market.

The Outlook for Horticulture in Saskatchewan

Angus MacKay, Superintendent, Experimental Farm, Indian Head

THERE need never be any doubt about the growing of vegetables, flowers and small fruits in Saskatchewan. In the early years of its settlement, whatever else failed vegetables never did,



Some Horticultural Products of Saskatchewan

Exhibited at Prince Albert Exhibition by G. T. Barley

and the myriads of bright native prairie flowers proclaimed the hope that the cultivated sorts when tried would equal, if not surpass, in numbers and beauty those to the manor born. Small fruits, also, in those early years, greeted the newcomer in every vale and valley in profusion, and to-day currants, raspberries, gooseberries and strawberries are found throughout the length and breadth of the land, unsurpassed in quality in the Dominion.

Large fruits, such as apples, plums,

pears, peaches and cherries were not found in the early years, and are still conspicuous by their absence. For some years back, however, apple cultivation has assumed a more promising aspect from the fact that several very hardy varieties of crab apple from Siberia have fruited, and from this hardy stock, in time, equally hardy apples will be obtained, suitable for all parts of the province. With great care in protecting a few hardy apple trees have fruited in favorable localities, but a variety hardy enough to stand the summer's heat and the winter's cold in all districts, will require a large share of the Siberian crab apple in its composition. This has been well started by cross-breeding on the Central Experimental Farm at Ottawa, and the numerous small orchards on the Indian Head farm testify to the fact that time alone is required for Saskatchewan to grow apples, in part, at least, for its own use.

Manitoba native plums have for years been successfully grown in this province, but none of the Ontario or other cultivated sorts have ever stood the climate. Cross-bred sorts, like the apples, are more promising and in time these, too, will be in the settlers' gardens.

Peaches and pears are a decided failure, with little or no hope that our climate will ever permit these to grow outside glass houses. While we have the Ontario wild cherries (pin- and choke-cherries) in all districts of the province in profusion, there seems very little progress towards much improvement in this fruit. We have, it is true, Rocky Mountain cherries and sand cherries, but these are very far from taking the place of the real fruit.

I need not take up space recounting what varieties of vegetables succeed in this province. Leaving out tomatoes as uncertain of ripening, corn, water melons and musk melons for the same reason, any one of Ontario's seed catalogues may be taken and from first to last the vegetables contained therein can safely and surely be grown in every district in Saskatchewan. Where early sorts are

chosen, and the soil prepared in accordance with the climatic conditions, Ontario cannot surpass in quality or quantity the vegetables of this western province.



Vegetables Grown in Saskatchewan

In flowers it is safe to assert that no Ontario garden can ever hope to equal in brilliancy a flower garden in Saskatchewan, with its long hours of sunshine and cool nights. Every known variety of annuals succeeds. Asters, petunias, verbenas, stocks, sweet peas, pansies, phlox, nasturtiums, are but a few of fifty sorts grown year after year on this farm, and all do equally well. Tulips, peonies, iris, columbine, pinks, delphiniums and other perennial sorts have bloomed year after year in the experimental farm garden, remaining in the ground all winter.



Tomato Forcing in Saskatchewan

Greenhouses of Mr. Coster, Prince Albert



Other Side of Same Forcing House

The Civic Improvement Movement in Ontario*

Prof. H. L. Hutt, Ontario Agricultural College, Guelph

IT IS very evident to those who travel, or even to those who merely read the papers, that a strong movement has set in on this continent for civic and rural improvement. Just what it may result in, it is impossible to say at present; but it is safe to predict that the movement is going to have a marked effect on the appearance and character of our country generally.

ITS ORIGIN

The civic improvement movement has been the outcome of a growing appreciation of art and a desire for real beauty, which has resulted from the prosperity of the times and the tendency to travel. Its origin might be traced to Europe, where many of the towns and cities have become centres of attraction for American tourists. From the old land we have learned much and have still much to learn. European travellers always speak with delight of the architectural and landscape beauties of Paris, Brussels, Vienna and Edinburgh.

Just when and where the civic improvement movement first made its appearance here cannot be stated definitely, but like many other movements, some good, and others not so good, its effects were first seen in the country to the south of us. The town of Stockbridge, Mass., claims the honor of having, nearly fifty years ago, the first organization having for its object the preservation of natural beauties and the general improvement of the village surroundings. In later years many organizations having similar aims have been formed in various parts of the country, but the one which has been the most active in giving a national impetus to the civic improvement movement has been the American Civic Association. This association was formed in 1904, by the union of two associations which had for years been working along somewhat the same lines, viz., "The American Park and Outdoor Art Association," and "The American League for Civic Improvement." The new organization was said at the time to represent 480 local improvement organizations.

Mr. J. Horace McFarland, whom many of us had the pleasure of hearing at some of our local society meetings last spring, has been president of the new association since its formation, and he has by judicious use of the press kept the work of the association prominently before the people of the whole continent. There are at present twenty-two members of the American Civic Association in

Canada. These are scattered here and there from Halifax to Calgary. In this connection, I may say I think it would pay all of our Canadian horticultural societies to get in as close touch as possible with this progressive national association, and make the work, at least, if not the organization, international in character. Our Superintendent, Mr. J. Lockie Wilson, and I expect to attend the annual meeting of the American Civic Association to be held in Pittsburg, Pa.,

The aim of the civic improvement movement put in a nutshell, is for "A better and more beautiful America." The scope of this improvement may be inferred from an enumeration of the departments of work undertaken by the American Civic Association. These are fifteen in number, with a vice-president at the head of each department, and include: arts and crafts, women's outdoor art league, children's gardens, school extension, city making, factory betterment, libraries, outdoor



The Bill-board is a Public Nuisance and an Obstruction to Civic Improvement

The unsightly display illustrated is to be found in St. Catharines directly opposite the residence of Mr. W. B. Burgeyne, honorary director of the Ontario Horticultural Association.

next week, and we hope to get many pointers that may help us in furthering the work in this country.

The organization of our Ontario Horticultural Association three years ago was in itself a result of the influence of the American association formed a year or two previous. For it was felt that we should have a Canadian organization with similar unselfish aims.

Attending this convention, we have delegates from a large number of the sixty-six local horticultural societies already formed in this province,—all interested in promoting local civic and rural improvement. It should be the duty, therefore, of this association to take the lead in assisting, directing and promoting such movements in all parts of the country. We have a big field for operations, and a splendid work to do.

art, parks and reservations, public nuisances, public recreation, railroad improvements, rural improvements, social settlement, and the press.

One of the strong features of the work of the American Civic Association has been its use of the press in educating public sentiment and spreading abroad information regarding what has been accomplished in different places and what may be done in others.

In Ontario we need not at present undertake so many kinds of work, but it would be well for us to begin at once to concentrate our efforts on a few lines which need most attention at present. To this end, I would suggest that our association appoint committees or departments this year to deal with such problems as: 1, The improvement of home surroundings; 2, the improvement

*One of the many excellent papers read at the convention of the Ontario Horticultural Association held at Toronto in November



A Park Plot in the Centre of the Town of Brockville

of school grounds; 3, care and management of streets and boulevards; 4, establishment of parks and playgrounds; 5, abatement of public nuisances; 6, promoting rural improvement; and 7, the press. Many others might be added, but this would make a good beginning. If the right person were put at the head of each committee and work was begun at once, this association would make itself a power for good in the country, and we should have valuable reports from each at our next meeting.

As a matter of encouragement to those who may be looking for more rapid changes, it may be well to call attention to the steady and even rapid progress that is being made in many parts of the province. There have been a number of agencies contributing to this progress

which may be used to still greater purpose in the future:

1. The more general use of cement in the making of pavements and sidewalks has had a marked effect on most every town and village in the country. In many Ontario towns cement has almost entirely replaced the old wooden walks during the past ten years.

2. Accompanying the laying of permanent walks has come the removal of street fences. In many up-to-date Ontario towns and cities we may now go block after block on the residential streets and see no fences, either in front or between lots.

3. Immediately following the removal of fences has come the proper grading of the lawns and boulevards to the line of the pavement, and more attention to

keeping the grass nicely cut. A prominent citizen of Woodstock told me that it was not many years ago that he owned the only lawn mower in the town. Now it would be hard to find the citizen who did not own and use one regularly.

4. In some places where systematic tree planting has been done along the boulevards, there are now fine avenues of street trees. But just here is where so many towns have been spoiled because the street planting has been left to the individual property owners, no two of whom have the same idea of what kind of trees should be planted, or where they should be placed on the boulevard. This has rendered it impossible to make a uniform continuous row of trees, because of the great variety selected and the hap-hazard method of their arrangement. The street planting and care of the trees in every village, town and city, should be under the management of a park board or commission, which can adopt a definite plan for the regular planting of certain kinds of trees on certain streets and see that they are properly cared for.

5. In a number of our cities and most progressive towns, park boards or commissions have been appointed, as provided for by the Ontario Parks Act. This means that much greater progress will be made in such places, and other places will wake up to the necessity of similar action.

Within the last few years many of our Ontario towns and villages, to say nothing of the larger cities, have seen the advisability of making park reservations, and have purchased lands for park purposes. In some cases, the development of these has been undertaken by the town council, and in others by a park board, but experience has proved that greater continuity of action may be expected from a board or commission which is more or less permanent.

Evidences of progress in the establishment of parks may be seen in such places as Ottawa, Brockville, Havelock, Toronto, Brampton, Hamilton, Galt, Guelph, Berlin, Waterloo, Woodstock, Stratford, Barrie, Orillia, London, Leamington, and many other places.

For a town of its size, I know of no place making greater progress in the establishment of beautiful parks than the town of Galt. It has now three good sized parks and seven or eight small plots and squares about the town which help to make Galt a town beautiful.

(To be concluded in next issue)



A Little Work and Expense Would Make this Scene Ten-fold More Beautiful

Many towns in Ontario have near them beautiful river banks which should be purchased now while the land is cheap and gradually improved for park purposes. The scene illustrated is within the town limits of Smith's Fall

If you have any photographs of your garden, orchard or lawn in winter, kindly send them to THE CANADIAN HORTICULTURIST for publication. An excellent article entitled, "Planting for Winter Effect in the North," will appear in an early issue.

A Beautiful Home Before and After Planting

Collier Stevenson, Hamilton, Ontario

IN the "Before and After" pictures of "Dalkeith Lodge," the home of Mr. Henry New, of Hamilton, Ont., shown on this page, we have a striking instance of how even the best of houses architecturally may be enhanced by skilful planting. The owners were fortunate in having the co-operation of their architect, Mr. Herbert H. New, of Hamilton, in the arrangement of the grounds.

A massive box of green shingles was placed on each side of the front entry and filled with glowing scarlet cannas, while geraniums of the same hue were massed along the front of the verandah, with a background of hydrangea and spiræa.

Unfortunately the illustration does not show the very effective trellis which was designed by the architect for the side of the verandah. These, however, were painted white, against which the cool green of the vines contrasted splendidly.

A hedge of scarlet dahlias lent brightness to the side boundaries, completing a most harmonious color scheme—the red walls of the house blending with the scarlet of the flowers, the moss green of roof and flower boxes harmonizing with the foliage, and the clear white of the woodwork being repeated in the trellises.

Fall Bulb Planting

Editor, THE CANADIAN HORTICULTURIST: As you have solicited questions for discussion in THE CANADIAN HORTICULTURIST, and as the practise of fall bulb planting has become so general and so extensive amongst our people, may I ask the question, "How long may tulips and other bulbs remain in the same place in the ground?" There is at present quite a difference of opinion among the people in this regard, some removing them annually and others leaving them in the same place for two or more years.

Our practice has been to leave them untouched for three years, but we find that the divisions have been so great that they are practically useless afterwards. For this reason, our planters are now adopting the practise of annual removals, and think that they have some advantages. But even this practice has contra considerations. First, it involves much labor and care in storing, and secondly, the bulbs are liable to become mixed and in a state of confusion, and ordinary planters "can't be bothered." Of course, this practice leaves the ground quite clean and free for all summer uses, but the three years course also allows the ground for other plantings by cutting the tops, raking all off and planting over the bulbs as though they were not



Before Planting—"Dalkeith Lodge," the Residence of Mr. Henry New, Hamilton, Ontario

there. Considering all the pros and cons, the use of the ground, the best interests of the bulbs and the finest and most abundant flowering of the bulbs, what would you advise?

Perhaps you will consider the question useless, as we ought to buy new bulbs and plant every season and so encourage the trade. You may also think the questions a little premature; but if we knew the consensus of opinion in this matter, we might be guided in our plantings

accordingly. Would like to hear also from other horticulturists, who are interested.—B. Gott, Strathroy, Ont.

(NOTE.—The question asked and discussed by Mr. Gott is important and interesting. For the present, we will leave the question open. Readers of THE CANADIAN HORTICULTURIST are requested to send short accounts of their experiences for publication in the January issue.—Editor.)



After—Much Taste and a Little Money Produced this Result

This is one of the many beautiful homes of Hamilton—It is a model for other amateur planters to follow.

Labor Saving Tools for Garden Work*

Hermann Simmers, Toronto

THE first and still the most important tool in the garden is the human hand, and probably at one time in ages past, it was the only one. Still, at a very early period, tools of some description had been devised, to lighten the labor of the gardener. In our youthful days—alas, further back than some of us care to admit—a conundrum was propounded. It ran thus: "When Adam delved and Eve span, who then was the gentleman?" The obvious answer is that Adam was the gentleman, and mark you he was the first man, he was a gentleman and he was a gardener—all of which is true. Our immediate interest, however, is to enquire what Adam delved with. No doubt he did much work with his hands—in many gardening operations still the very best of tools—but he could not delve very well thus, unless he had something to aid him. The cradle of the human race is in the East, and it is there, we can observe customs to-day

In explanation of my further meaning, you will find that among the first and last things to be done in almost any garden in spring or fall, is to have your garden dug in the spring and spaded again in the fall, and those who are not so fortunate as to employ a man for this work, will better understand the necessity of a pair of good, strong arms to do this work.

THE BEST TOOLS

I have not had the pleasure of attending any of the conventions of this association, and am not acquainted with the intention that you have, whether it is necessary, just to introduce the subject and after introducing, that questions are asked, as to this, that or the other matter, but I am going to give you a list of a good many articles that I have used myself, as well as some of the others that I know are "labor-saving tools," but which I may not have had occasion to use. The list approximately is as fol-

Now, to those who have a more pretentious vegetable garden, this more modern implement, is apt to encourage the amateur to extend his work.

I have seen many a fine garden in the smaller towns, which does credit to the man who attends to it and should be a credit to the town, if the towns would so take note of them. To these gentlemen, I strongly urge their using one of these implements. They were originally gotten up by some Yankee not overly fond of work, but let it be said to the credit of his genius, that he has bestowed on us an implement that will save the labor of an amateur gardener.

TAKE CARE OF TOOLS

I would also suggest that all the tools possessed by the amateur be properly hung up, neatly and systematically, and that they should not be thrown in a corner, in a careless manner. You might as well expect a woman working in her kitchen to throw her pots and pans in a heap in the corner and expect her to be able to find what she requires, quickly. I see no reason why man's labor-saving tools for garden work should not be kept in the same precise manner that a woman keeps her household utensils. The garden tools should also be kept clean and ready for use.

Flowers in the Yukon

The illustration of pansies that appears on this page shows one of the horticultural possibilities of the Yukon. These pansies were grown in Dawson City by Mrs. George Black from Giant Pansy seed, furnished by J. A. Simmers, Toronto. In a letter to J. A. Simmers, Mrs. Black said:

"I am sending the pansies to show how successfully we grow flowers from your seed. Many of the gardens here in summer are very beautiful. In a space only twenty-five by fifteen feet, that we devoted to flowers last season, we grew twenty-eight kinds, including pansies, English and shasta daisies, nasturtiums, musk plants, nicotiana, ice plants, poppies (Iceland, California and Shirley) sweet peas, canary vine, wild cucumber, stocks, asters, everlastings, gypsophila, mignonette, forget-me-not, lobelias, wild orchids and ferns."

Be sure and take some photographs of your potted bulbs in bloom and send them for publication.



Some Pansies that Grew in the Yukon—Illustrated One-quarter Size.

which had their inception in Adam's time, or not long after. The soil there is so sandy and easily worked, that a very primitive stick sharpened, would be all the labor-saving appliance required. Irrigation is the great problem there. In lands under different climatic conditions, different circumstances naturally arise and in our own land, one must admit, that stirring with a pointed stick would not have much effect. Therefore, other labor-saving tools had to be invented. The king of all labor-saving tools, is still the spade. Spade culture is the most intensive and, per acre, produces more crops than any other form of culture.

In my opinion, the Creator, has endowed us with the best means of labor-saving appliances. I mean a pair of strong arms. To those who have been at the garden hobby for some years, their arms will have been strengthened by their use, an all-wise Providence having created man or woman with these handy appendages, and the man or woman who makes liberal use of them, will have as a result much the better garden, for his close attention.

low: spade, shovel, lawn rake, steel rake, field hoe, Dutch hoe, spading fork, manure fork, garden reel, garden line, grass hook or sickle, pruning knife, pruning shears, pruning saw, half-moon edging knife, indelible pencil, labels tree or pot, appliances for destroying insects, hot-bed thermometer, garden trowel, tree pruner, watering can, wheelbarrow, lawn mower, hand weeder (such as Hazeltine's, Excelsior, etc.), wheel plow, and hand seed drill.

MAKE GARDENING A PLEASURE

This is about the list that would be necessary to complete a full stock of "labor-saving tools" for the amateur. Many might say that a spade, a hoe and a rake, is all he has used and found them satisfactory, but if they had picked out from this list any other special tools and used them at the proper time, they would have saved labor and made for themselves, the garden, more interesting.

THE COMBINATION SEED DRILL

It is almost useless to go into the detail and description of all the tools that I have listed and from which I will refrain, but amongst the list, I would like to draw more attention to the combination seed drill, which has the garden plow, wheel hoe and seed drill combined.

*Extracts from a paper read at the convention of the Ontario Horticultural Association, held in Toronto last month.

What Amateurs Can Do in December

WHEN looking for Christmas gifts, do not forget that there are many horticultural products that will be acceptable. Flowering and ornamental plants will add cheer to the festive season. Make your selection early, and ask the florist to hold them for you. In flowering plants, select those that are not far advanced in bloom buds. They will be more appreciated because they last longer.

Among the many plants suitable for Christmas presents are Gloire de Lorraine begonias, Baby Rambler roses, cyclamen, Jerusalem cherries, hyacinths, narcissi, daffodils, primulas, azaleas, genistas, rubber plants, araucarias, poinsettias, screw pines, ferns and many others.

Other gifts that will be appreciated by amateur gardeners are books on horticulture. There are scores of good ones, well printed, illustrated and nicely bound. Write to THE CANADIAN HORTICULTURIST for our book catalogue. A nice gift would be a year's subscription to THE CANADIAN HORTICULTURIST. Read the special offer on the inside front cover of this issue.

Various kinds of fruits make excellent presents. What would be nicer than a box of No. 1 Spys, Fameuse, or of some other seasonable variety?

THE WINDOW GARDEN

While potted bulbs bought from florists would be appreciated as gifts, they would be doubly acceptable if the recipient learned that they had been grown by the giver. If you are growing some for Christmas, watch them closely. Keep them well watered. Keep them where it is not too warm but within reach of sunlight.

Avoid draughts of cold air on house plants. Ventilate on calm, warm days. Moist air and intelligent watering at the roots of plants are necessary to attain success in window garden work.

When re-potting plants, use pots only one or two sizes larger than those in which the plants now stand. Water well as soon as potted and do not repeat until the soil shows signs of dryness.

OUTDOOR WORK

If you have not mulched the bulb beds, do it now. Strawy manure or spruce boughs make good material. A covering of leaves with brush to hold them and to catch the snow is excellent for the purpose.

Protect the tender and half hardy perennials. Mulch the lilies, especially the Japanese varieties.

Make a compost heap of the fallen leaves. It will come in useful next year.

Wrap and protect tender vines and shrubs. Remove and burn garden rubbish. Saw dead limbs from trees. Seek

eggs and cocoons of insects and destroy them. Clean garden tools and cover the iron work with grease to keep them from rusting.

some photographs of the garden if you have them.

Watch the lawn and shrubbery for the time when the winter effect is most beau-



The First Prize Group of Orchids at the Ontario Horticultural Exhibition
Exhibited by T. Manton, Eglington, Ont.

Were you successful this year with your garden? Did you try something new, and what was it? Did your garden teach you anything that you did not know before? What pointers can you give to other amateurs? Answer these questions in a letter for publication in THE CANADIAN HORTICULTURIST. Send

It will be a pleasant surprise to many persons who think that the lawn is of use only in summer. Take some photographs when the trees and shrubs are drooping beneath a weight of snow. Send them to THE CANADIAN HORTICULTURIST for publication with some description of the plants in the scene.



Some of the Flowers and Fruit at the Ontario Horticultural Exhibition held in Toronto last month.

How to Grow Ginseng

Wm. Gilgore, Peterboro, Ontario

THE conditions necessary for the successful culture of ginseng may be stated briefly as follows: A rich, cool, loamy, loose soil, natural or artificial shade, moisture and proper attention. Although there are many ways of

inches apart and fasten with staples. Over this, I put cedar boughs.

CULTIVATION

The cultivation of ginseng is as certain and as easy as that of any other garden root. Attention to a few simple but

or six years have passed. This is a mistake as the roots can be dried and sold in three or four years but the profit will be greater from larger roots. A very important point for the intending grower to consider is the securing of roots and seeds from the same latitude in which he is located if possible. Those from a few degrees farther south will not ripen the seed as well in cold seasons.

PROFITS

Profits depend upon the intelligence of the grower. Strict attention to details is as essential in this line as in any other. As an illustration, I may say that a plot of ground sixty-five feet long by five feet wide will hold 1,000 roots. At the end of four or five years, it will produce from fifty-five to sixty pounds of dried root. The present price ranges from \$6.00 to \$8.00 a pound, according to quality. Quality means large, clean roots. But that is not all. At the end of four years, you would have 1,500 seedlings and 8,000 seed in the ground, due to come up the following spring, and from 15,000 to 20,000 seed on hand,—all the product of the original 1,000 year-old roots. The revenue from the seed is enough to pay all expenses, leaving the proceeds from the dried root all profit. Follow the process for ten years and I will venture to say there is a profit of 100 per cent. per annum at present prices.

Ginseng is lavish in the production of seed so that the grower is his own seedman and nurseryman after the first two years. In making the above estimate, I am well within the bounds of probability. I often have been asked why farmers do not take up the culture of ginseng and



Outside View of Ginseng Garden Showing Lath Sides and Brush Top

One of the Gardens of the Saugatuck Ginseng Co., Michigan

applying these principles, there can be little doubt of success if they are followed.

When starting a patch, select a cool, moist piece of ground, preferably level, or nearly so where there is natural loam or where the soil is loose and rich. Well-rotted stable manure, mixed with an equal quantity of swamp muck, will bring garden soil to the proper condition. The ground must be fertile. Sandy soil, if rich and moist, is not objectionable. The drainage must be good.

PREPARING THE BEDS

Spade the ground to a depth of twelve or fourteen inches. My beds are five feet wide by sixty feet long. I put pine strips, six inches wide by one inch thick, lengthwise of the bed and drive in a few small stakes to hold them in position. I then spread a coat of well-rotted horse manure, mixed with black muck, well pulverized, over the bed to a depth of three or four inches. I spade it a second time and rake the bed level. The bed is now in the right condition to receive the young roots. I plant the roots six inches apart with eight inches between the rows.

For shade, I set up cedar posts, twelve feet apart, across the beds and about the same distance apart lengthwise of the beds and nail scantling across from post to post. I run wire along the top of the scantlings about eighteen

necessary points such as shade, drainage, and so forth, is all that is necessary to accomplish what was twenty years ago thought to be impossible.

The ginseng root is at its best age for commercial purposes after five or six years from seed. It seems to be the general impression that nothing can be realized from the growing of this root till five



Inside View of Same Garden—Brush Shade on Top—Seedlings of 1907 in Beds

have said in reply that this is work for the small plot owner, the same as bee-keeping, mushroom growing or any other specialty. It is the most profitable of all, however, if the grower observes the rules for successful culture and has patience to wait for three or four years. A quarter of an acre will produce enough to send his boys to college if he plants in a small way and faithfully reproduces from his own plot. The artisan, clerk or laboring man who has a small garden can make a success of ginseng growing and money for himself.

History of Ginseng

A. W. Twiner, Sangatusck, Mich.

The American ginseng is a plant closely related to the parsley family in which family are included the parsnip, carrot and celery. The wild root found in the forests of America is a near relation of the Chinese and Korean root (*Panax Ginseng*). Ginseng is a Chinese word meaning man-shape. It was found in Canada near Montreal in the year 1716 by Father Lafitan, a missionary among Iroquois Indians, after a description of the plant and samples of the root had been sent to Canada two years prior to that date by a brother missionary in China.

Soon after its discovery the French began to gather it and export it to China. It soon became a very important article of export, the roots costing forty cents a pound at Quebec, and selling for ten or twelve times that amount in China. At that time the Company of the Indies controlled the trade between Canada and China. In 1751, the company raised the price to \$10.00 a pound which caused the Canadian hunters to gather it out of season, to imperfectly clean and dry it and to send somewhat similar roots until the Chinese refused to buy it at any price. For several years the ginseng trade from America ceased, until a few years ago. Since then the root has been largely cultivated with a favorable market in China. The export for 1907, according to report issued by the United States Department of Agriculture, was \$1,268,658, this being mostly cultivated root.

Watch for the next issue of THE CANADIAN HORTICULTURIST. An article on foes of vegetables will appear.

One of the finest vegetables for the table is Brussels Sprouts. It should be grown more extensively, and the public should be taught its value.

The vegetable gardener, who has an abundant supply of water available, is fortunate. Sometimes a small amount of water applied at the right time, will make the difference between a good crop and a total failure.

Melons By the Ton

L. A. Hamilton, Lorne Park, Ontario

IF ONE can judge from the crop marketed in Toronto, the season of 1908 must be looked upon as one peculiarly fitted for the growing of melons. The warm copious rains of the early season pushed forward the growth of the plants. This was followed by a long period of dry weather, with hot days and warm nights which hastened the maturing of the fruit.

The conditions were somewhat similar to those prevailing in eastern countries where the melon is extensively grown. There, melon gardens are largely confined

Two difficulties present themselves to the melon grower in this locality: The transporting of this bulky crop to market and the low price obtained for it. So far, no practical or uniform package has been invented for shipping in. The product finds its way to market in eleven quart baskets, various kinds of berry crates and apple barrels.

The Island of Montreal has made a specialty for a number of years of growing melons of a certain type, and the growers by producing a good article and judiciously advertising it, have suc-



Harvesting Melons by the Ton in Ontario
Fruit Farm of Mr. L. A. Hamilton, Lorne Park

to the low lying margins of the rivers and the bars left dry by the falling waters. The writer has watched the natives on the banks of the Nile, and on the Ganges, following up the receding waters and planting the melon seeds as fast as the bars appear above the surface of the water. The ground is then completely saturated with water which, on being subject to great heat, causes the plants to grow with great rapidity, and to bring their fruit to maturity with little or no rainfall.

The rapidity of growth, and the generosity of the crop in the Lorne Park district, has not been confined to melons alone but to all others of the gourd family. Water melons and squash have been grown on contiguous ground, weighing as high as forty pounds for the former and 125 pounds for the latter; these results were obtained from seed sown in the open air and without the use of any artificial stimulants during growing period.

ceeded in establishing a market for their melons and disposing of them at a price that makes the Ontario grower turn green with envy. We have a soil that seems particularly adapted for the growing of this crop, but it is poor encouragement to the grower to get on an average five cents a piece for choice melons ranging in weight from two to eight pounds each. Is it not possible by means of cold storage to ship melons to England profitably, thereby enlarging the market and stimulating the industry?

Grow the best that can be grown, and the market is yours.

An error occurred in printing the article on "Ornamental Gardening in Southern British Columbia," that appeared in the November issue. In the third line of the third column, the word "forests" should have read "tourists."

The Canadian Horticulturist

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PETERBORO AND TORONTO



The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF BRITISH COLUMBIA, ONTARIO, QUE-
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FRUIT GROWERS' ASSOCIATIONS AND OF THE ONT-
ARIO VEGETABLE GROWERS' ASSOCIATION
H. BRONSON COWAN,
Managing Editor and Business Manager
A. B. CUTTINO, B.S.A., Horticultural Editor
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6. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT

Since the subscription price of The Canadian Horticulturist was reduced from \$1.00 to 60 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with Dec., 1907. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Some months, including the sample copies, from 10,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

Circulation Statement

January, 1907.....4,947	January, 1908.....7,650
February, 1907.....5,520	February, 1908.....7,824
March, 1907.....6,330	March, 1908.....8,056
April, 1907.....6,460	April, 1908.....8,250
May, 1907.....6,620	May, 1908.....8,573
June, 1907.....6,780	June, 1908.....8,840
July, 1907.....6,920	July, 1908.....9,015
August, 1907.....6,880	August, 1908.....9,070
September, 1907.....7,080	September, 1908.....9,121
October, 1907.....7,210	October, 1908.....9,215
November, 1907.....7,257	November, 1908.....9,323
December, 1907.....7,500	

Total for the year, 79,525

Average each issue in 1907, 6,627

Sworn detailed statements will be mailed upon application.

Our Protective Policy

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

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EDITORIAL

THE LATE DR. JAS. FLETCHER

The death of Dr. Jas. Fletcher, that occurred in Ottawa on November 8th, was learned with grief by the horticulturists of the Dominion. His genial personality, his practical worth and his fidelity to the interests of the country of his adoption endeared him to all persons who knew him, either personally or through his official work and writings. For many years he gave his attention to solving the biological problems of horticulturists and of agriculturists. He was an authority on entomology and botany, particularly on the former. His work will be chronicled in the annals of the history of biological progress.

The passing away of Dr. Fletcher is a distinct loss. It will be difficult to replace him. His position was one of great importance in the agricultural development of the country. His successor will have to be an expert and an alert servant of duty to maintain the standard of excellence achieved by Dr. Fletcher. To his bereaved family and to the staff of the Dominion Experimental Farms we extend the sympathy of the horticulturists of Canada as well as of THE CANADIAN HORTICULTURIST.

AN INCREASED INTEREST

The astonishing increase that has taken place during the last year in the membership of the horticultural societies of Ontario, as well as in their expenditures for horticultural purposes, is the best evidence that the new Act governing the work of the societies is proving a success. Before this Act was passed, the societies received what were practically fixed government grants, irrespective of their membership or of the work they were doing. Under the new Act, one-third of the government grant is distributed to the societies in proportion to their membership and two-thirds in proportion to their expenditures for horticultural purposes. Thus, the grants that the horticultural societies receive are in proportion to the effectiveness of their work.

It took the societies about a year to realize that unless they got out and hustled for new members and did good work along horticultural lines, their grants were going to be reduced. This year, however, the societies apparently have understood their position for the membership of the societies, according to Supt. J. Lockie Wilson, has increased from a little over 6,000 to about 9,000, or by about 50 per cent. The expenditures for horticultural purposes have increased in proportion.

Some societies have doubled and trebled their membership. The Ottawa society this year, secured a membership of over 1,000. In case any person might think that the Ottawa society must be favorably situated, to enable it to show such an increase, it might be stated that a number of the smaller societies in the province, increased their membership in proportion, the Grimsby society, for example, having doubled its membership.

Owing to this great increase in the membership of the societies, the present government grant of \$8,000 a year to the 60 or more societies in the province, has become inadequate. At the recent convention of the Ontario Horticultural Association, it was decided to ask the government to increase the government grant from \$8,000 to \$10,000 a year.

By passing the Act in its present form, the government made it necessary for the

societies to increase their membership to hold their grant. The societies have done this to the point where the present government grant is no longer adequate. The increase asked for in the grant is less in proportion than the increase that has taken place in the membership of the societies. In view of the splendid work that the horticultural societies are doing, and remembering the sympathetic interest that was shown in their work by the former Minister of Agriculture, Hon. Nelson Monteith, there is every reason to believe that the increased grant asked for will be favorably considered by the new Minister of Agriculture, Hon. J. S. Duff.

HORTICULTURAL EXHIBITION

The descriptive phrase, "It is larger and better than ever," is founded more often upon enthusiasm than upon truth. When it can be applied accurately, it embodies a compliment and gives encouragement. The management of the Ontario Horticultural Exhibition and the horticulturists of the province should be proud, therefore, of its frequent use in press reports of the show held in Toronto last month. In all truth, that exhibition was "larger and better than ever." It was a credit to the province.

While worthy of praise in all its departments, there is still opportunity for advancement. An exhibition must be better each year than the last to keep in the front rank. The defects, small or great, that each succeeding year teaches and the rapid development that is taking place in our horticultural pursuits require corresponding progress in our exhibitions. The Ontario Horticultural Exhibition may be broadened in its usefulness and in its importance by seeking some exhibits of a national character.

QUEEN VICTORIA PARK

Our editorial in the November issue in reference to appointments at Queen Victoria Park at Niagara Falls has been the subject of considerable comment. We have received letters endorsing our contention that only thoroughly competent men should be appointed to succeed Messrs. Jas. Wilson, and Roderick Cameron. The interests of the park demand this consideration and demand it soon. The value and horticultural eminence of the park must be preserved.

The people of Ontario who own this park and who are beginning to take a national pride in it will be indignant to learn that already many valuable plants at the park have been lost through incompetent management. Gardeners and not party workers, should be in charge of the work. If the Government does not take action soon there may be serious cause for regret in days to come over the impairment of a park that has been an object of national pride. Our Canadian and Ontario horticultural associations should assert themselves on this matter.

THE DOMINION CONFERENCE

The fruit growing interests of Canada require another Dominion Fruit Conference this winter. Growers in all parts of the country are anxious that such shall take place. Many written expressions of this feeling are in our office. It is surprising that, after the promises of the Dominion Minister of Agriculture, made at the conference held in 1906, that some move in this direction on the part of the Department of Agriculture has not yet been evident.

If the importance of the fruit industry

warrants it,—and it does,—a national conference should be held every two years. Three years are passing since the last one. It is time for another. Fruit growers individually and fruit growers in conventions should agitate the matter more strenuously. It is regrettable that, through an oversight or carelessness, no concerted expression of opinion was recorded, either by resolution or otherwise, at the recent convention of the Ontario Fruit Growers' Association. Most of the members of the organization are looking forward to another conference. An opportunity was lost to impress the authorities at Ottawa with this fact. Associations in other parts of Canada should not neglect the matter. Our growers are entitled to a national conference this winter. If our growers do not recognize the importance of their industry and press, in a concerted manner, for its proper recognition, the Dominion Government cannot be blamed for not giving the attention to these matters that their importance deserves.

Export Apple Trade

Ed., THE CANADIAN HORTICULTURIST:—I read with interest the letter of Mr. Eben James in your magazine for October and must join issue with him on several points therein mentioned. First, it is quite true that there are several undesirable receivers in Great Britain, but at the same time there are plenty of good firms outside the six who form the Liverpool Fruit Auction and there are also a number of firms who do their business quite as above-board as the aforementioned. I presume that Mr. James' letter is more or less aimed at the firms who do not sell in the Liverpool rooms.

As regards the bona-fides or otherwise of these firms I do not know, but I would like to point out that in selling by private treaty one is able to get quite as good, and in many instances better, prices and also to give buyers greater satisfaction. As an instance, my firm has only been in the apple business for the past two years, but last year we received and sold purely on commission between 30,000 and 40,000 barrels and so far we have not made a dissatisfied sender neither have we received a letter of complaint.

I do not want to argue about the merits of the closed room, but any man of common sense will agree that prices are likely to be better when competition is open to the whole of the customers in a market rather than when it is confined to a selected few.

We sell the whole of our apples by private treaty, and I maintain that a buyer is more likely to get satisfaction by purchasing in that way than he is by auction and at the same time the apples, being open to thorough inspection, the growers are bound to get the highest prices as everything is sold absolutely on its merits; whereas, when stuff is put up for auction, in numbers of instances, buyers have not the time or opportunity of examining before hand, consequently they are always more or less buying in the dark. Therefore, the man who has sent the best stuff is not at all unlikely to get the worst price.—T. J. Poupart, Covent Garden Market, London.

Are you wondering what you can give some of your friends for Christmas? THE CANADIAN HORTICULTURIST would make a nice gift.

I have received a great deal of useful information through THE CANADIAN HORTICULTURIST.—J. Carlson, Gardener, Maskinonge Co., Que.

The Ontario Horticultural Exhibition

THE horticultural products of Ontario were shown to great advantage at the fifth annual Ontario Horticultural Exhibition held in Toronto in November. The display of fruit, flowers and vegetables was a credit to the province. The total number of entries in all departments exceeded that of last and previous years. The manner in which the St. Lawrence Arena was decorated and the arrangements of the various exhibits received much praise. The show was of great educational value. It impressed the public with a keener appreciation of the horticultural possibilities of the province and it showed the growers themselves what others can do in the way of producing fruits, flowers and vegetables of superior quality.

In the fruit department, the exhibits of some co-operative fruit growers' associations were the objects of much comment and attention. These associations seemed

be a revelation to those unacquainted with the rapid progress that has been made in fruit growing and in fruit operations during the intervening time. While the character of the packing shown at the recent exhibition was almost ideal, room for improvement was noticeable in a few cases. In boxes, some exhibitors failed to pack with due regard for the proper bilge. Because of defects in fruit, packing or package, the judges were compelled, in some instances, to award prizes to exhibits that appeared inferior to the uninformed. In the barrel sections, the packing, with two or three exceptions, was all that could be desired. One of the exceptions had superior fruit on top and small, wormy specimens in the bottom. It was noticeable that most packers are becoming more expert and have learned how to handle and prepare a barrel for market properly. In a few cases it was noticed, however, that where four or five



[A Part of the Vegetable Display at the Ontario Horticultural Exhibition]

to have a better idea of the requirements of the Fruit Marks Act and of proper packing and packages than did many of the individual exhibitors. The exhibit that received most praise was that put up by Mr. Jas. E. Johnson, of Simcoe, for the Norfolk Fruit Growers' Association. Sixty varieties were shown in this display. They were not exhibited in competition but were there to demonstrate the capabilities of Norfolk county in the production of high grade fruit. The St. Catharines, Oshawa, Trenton, and Chatham associations also showed fine fruit and their methods of packing were excellent.

The quality of the apples was almost perfection. The color and size of the specimens would compare favorably with those grown anywhere in the world. The apples in boxes and barrels were a superior lot. A comparison between this display and the package exhibit at the first Ontario Horticultural Exhibition held four years ago would

nails in a head liner would have been sufficient, some 15 or 20 were used. There were a few minor defects similar to this, but, on the whole the display was the best ever seen in this country.

While the apple was most in evidence, the more tender fruits were equally deceiving of praise in respect to quality, if not in number of exhibits. Some fine pears and grapes were exhibited on plates and in commercial packages.

The educational value of the fruit department was shown in many ways. The methods of packing were object lessons. The fruit itself showed what can be done by good cultivation, pruning, spraying, and so forth. The intermingling of exhibitors and visitors gave opportunity for learning the views of others and for disseminating practical pointers, and not the least for promoting a feeling of good fellowship between growers in all parts of the province.

The Central Experimental Farm at Otta-

wa, had a large exhibit of fruit of Canadian origin. The Ontario fruit experiment stations showed a variety of fruits in their natural state and preserved. The Ontario Agricultural College exhibited mounted specimens of insects and fungous diseases. The display of preserved fruits was interesting and well put up. It is pleasing to note, also, that some of our best firms who have to do with the manufacture of materials used by horticulturists put up displays of their wares. Among them were the Dominion offices of the Potash Syndicate, who showed fertilizers; William Cooper and Nephews, insecticides and fungicides; Harris Abattoir Co., fertilizers; Spramotor Co., power sprayers; Bissell Mfg. Co., orchard implements; and some others. These added to the interest of the show. It is hoped that other firms will do likewise at future exhibitions.

THE VEGETABLES

There was a grand showing of vegetables. There were more entries and the quality was better than in previous years. The cauliflowers were exceptionally good, the most successful exhibitors being the McKays, of Doncaster. The celery, onions, cabbage, carrots, beets, parsnips, turnips, citrons, squash, potatoes, peppers, salsify and horseradish were said by the judges to be the best that they have ever seen. The competition was keen. The general collections were admirable, the first prize being won by W. Harris of Humber Bay; second, Brown Bros., Humber Bay; third, F. F. Reeves, Humber Bay. Besides the exhibitors mentioned, other successful ones were: J. W. Rush, and J. Dandridge, Humber Bay; J. Guthrie and G. Watson, Dixie; T. Delworth, Weston; E. Brown, Wyckwood, and C. Plunkett, Woodbridge. The judges were R. H. Lewis, of Hamilton, and Geo. Syme, Jr., of Carleton West.

THE FLOWER SHOW

Although the flower and plant show was an admirable one in point of quality the entries were not as numerous as last year. There was a shortage, especially in the chrysanthemum classes. R. Jennings, of Brampton, won the prize for the largest chrysanthemum in the show. The new 'mum, "W. R. Brock," shown by the Steele-Briggs Seed Co. was much admired. There were some excellent carnations and roses shown. The floral designs were well done. The decorated dining tables were much better than last year. The collections of orchids were splendid, first prize being won by T. Manton, Eglinton; second, E. F. Collins, Toronto; third, W. J. Potter, Toronto. Plans for next year's exhibition already are being made. The lessons learned at this year's show and at previous ones will be used in making next year's exhibition grander and better than ever.

National Apple Show

It is expected that the National Apple Show to be held in Spokane, Wash., Dec. 7-12, will be the greatest exhibition of its kind ever held in the world. The total value of premiums amounts to over \$35.00. The secretary is Mr. H. G. Neely, of Spokane.

A premium of \$1,500 calls for a carload exhibit of 210 barrels or 630 50-pound boxes of one or more varieties. A premium of \$1,000 is offered for exhibits of not more than two barrels, boxes, baskets or plates of one variety. The exhibitor of the largest apple of regular shape, with perfect stem and calyx and without disease or blemish, will receive a reproduction of the fruit in bronze, heavily plated in gold and mounted on a silver pedestal representing Adam and Eve in the Garden of Eden.

The Ontario Horticultural Association

THE great work that can be accomplished on behalf of the horticultural societies of the province by such an organization as the Ontario Horticultural Association was shown in numerous ways at the recent third annual convention of the association, that was held in Toronto, Nov. 10-11, at the time of the Ontario Horticultural Exhibition. Horticultural societies from all parts of Ontario were represented by delegates. The attendance at all the sessions was gratifying and demonstrated that the horticultural societies are beginning to realize how necessary it is that they should be organized through a central association.

A most important decision reached was that application should be made to the Ontario Government for an increase in the government grant from \$8,000 to \$10,000 a year. Supt. J. Lockie Wilson, in his annual report, announced that the membership of the horticultural societies this year, as compared with last year, would show an increase of about 50 per cent or, from a little over 6,000 to over 9,000 members. This great increase, he said, was due to the recent change in the Horticultural Societies Act, by which the societies are now offered inducements to increase their membership.

There would be, he reported, a similar increase of the expenditures of the horticultural societies for horticultural purposes. Mr. Wilson recommended that the Act be amended so that the officers of the societies will be required in future to give an affidavit in regard to the annual expenditures of their society, so as to prevent the annual reports of the societies from being padded. It was suggested by Mr. Wilson that action be taken to limit the grant that any society should receive to \$800, as there were a couple of societies in the province that would receive over that amount next year. The convention unanimously decided in favor of petitioning for an increased Government grant. No action was taken in regard to petitioning for power to limit the grant of any one society to \$800 a year. This matter has been discussed thoroughly at a meeting of the directors previous to the convention, at which it had been pointed out that the societies which were getting the large grants were getting them because of the hard work that had been done, that smaller societies who had put forth energetic efforts, had succeeded in doubling their membership and their expenditures for horticultural purposes, and that it would be unfair to limit the grant to a large society, simply because it had worked hard to make a good showing.

Prof. H. L. Hutt thought that a special effort should be made to organize new societies in the various towns of the province where there were none at present, and referred to the Stirling society, which was doing good work in a town where the population was a little over one thousand.

It was decided to petition the Ontario Legislature to give power to municipalities to tax bill boards and to urge municipalities to take such action.

Rev. A. H. Scott, of Perth, read a report for the committee appointed to consider the introduction of horticultural topics in the new school books of the province. The report urged strongly that this should be done. The Ontario Department of Education, while recognizing the importance of nature study, had stated that the books were readers only and, while the department would bring nature study as much as

possible to the front, it could not arrange to adopt special subjects.

The report of the secretary-treasurer showed a balance on hand of \$152.30, from which the expenses of the annual convention would have to be deducted. The report showed that the following societies had affiliated for the year 1908-09: Smith Falls, Windsor, London, Hamilton, Kingston, Oakville, Cardinal, Walkerville, Brantford, Kincardine, Port Dover, Toronto, Springfield, Belleville, Thornbury, Goderich, Cobourg, Perth, Ottawa, Seaford, Elmira, Bowmanville, Hamilton, Grimsby, Picton, Galt, Owen Sound and Clinton.

The committee on nomenclature, that had been appointed at the last annual convention, reported progress and was re-elected. The report was presented by Mr. John Cavers, the secretary, who stated that the Ontario Vegetable Growers' Association and the Canadian Horticultural Association, had both appointed representatives to act on the committee.

The election of officers for the association for the ensuing year, resulted as follows: Pres., Major H. J. Snelgrove, Cobourg, (re-elected); 1st vice-pres., R. B. Whyte, Ottawa, (re-elected); 2nd vice-pres., Roderick Cameron, Toronto, (re-elected); sec., J. Lockie Wilson, Toronto; treas., H. B. Cowan, Peterboro; honorary directors, W. B. Burgoyne, St. Catharines; Prof. H. L. Hutt, O. A. C., Guelph; Prof. W. T. Macoun, C. E. F., Ottawa; directors, Rev. A. H. Scott, Perth; W. Jeffers Diamond, Belleville; Miss Blacklock, Toronto; A. Alexander, Hamilton; Jas. Mitchell, Goderich; G. W. Tebbs, Hespeler; and John S. Pearce, London.

During the different sessions, a number of valuable papers were read. Some of them are published on other pages of this issue and others will appear later. They are as follows: "Laying Out and Planting of Small Gardens," Roderick Cameron, Toronto; "Window Boxes, Baskets and Rustic Stands," Wm. Hunt, Guelph; "Some Flowering Bulbs and Tuberous Plants," J. McPherson Ross, Toronto; "Horticulture in Great Britain as Seen by a Canadian," R. B. Whyte, Ottawa; "The Civic Improvement Movement in Ontario," Prof. H. L. Hutt, Guelph; "Increasing Membership," J. F. Watson, Ottawa; "Scientific Plant Breeding," H. H. Groff, Simcoe; "Best Half Hardy Tub Plants," Roderick Cameron, Toronto; "Perennial Borders," W. T. Macoun, Ottawa; "Labor Saving Tools for Garden Work," H. Simmers, Toronto; "Notes on Some New Peonies," R. B. Whyte, Ottawa; and some others.

Three new subscriptions for \$1.00 if sent before Dec. 25th, 1908.

The work of the Stirling Horticultural Society is making that little town one of the most progressive and beautiful in the Dominion. An interesting meeting was held last month at which Prof. H. L. Hutt, O. A. C., Guelph, delivered an address on civic improvement and flower culture.

The Woodstock Horticultural Society held its annual meeting last month. Those present pronounced it to be the best held yet. Much enthusiasm was shown in regard to the work of the past year and that of the future. Photographs of the flower show held by this society last August have just been received by THE CANADIAN HORTICULTURIST. They will appear in a latter issue.

An Important Fruit Convention

THE control of orchard pests, the regulating by law of the sale of nursery stock and the questions of markets and marketing were among the important problems discussed at the convention of the Ontario Fruit Growers' Association, held at Toronto in November. While these topics have been dealt with many times in the past, they are always new. Much valuable information in respect to their solution was imparted by a score of authorities at this convention. A representative gathering of fruit growers from all parts of the province was present. The various addresses delivered and the discussions that they incited resulted in the passing of the following resolutions:

"That it is the opinion of this association that the disease known as 'little peach' should be added to the Act respecting 'black knot' and 'yellows,' and that the same regulation that applies to inspectors under the San Jose scale Act shall apply to the inspectors under the aforesaid Act.

"That this association ask the Ontario Government to pass legislation compelling orchardists to spray effectively for the codling moth and that same be incorporated in the present Act that has to do with the control of orchard pests.

"That this association forward its thanks to the Grand Trunk Railway authorities for renovating and enlarging the old Scott Street fruit and freight shed in the City of Toronto, all of which is greatly appreciated.

"That it is the desire of this association that the Dominion Department of Agriculture continue in future its assistance in the matter of arranging for cold storage services on certain steamship lines for the carrying of early and tender fruits to Great Britain, and that same be extended as conditions may warrant.

"Whereas, the announcement of the untimely death of Dr. James Fletcher, entomologist and botanist at the Central Experimental Farm has come as a grievous shock to his many friends, the Ontario Fruit Growers' Association, assembled in annual convention at Toronto, begs to convey to his sorrowing family and to Dr. Saunders of the staff of the Central Experimental Farm, this expression of its deep regret and of sympathy with them in the loss which they have sustained, a loss which is common to the whole Dominion throughout which the deceased gentleman was well known and highly esteemed."

The election of directors for the ensuing year resulted as follows: R. B. Whyte, Ottawa; Harold Jones, Maitland; F. S. Wallbridge, Belleville; W. H. Gibson, Newcastle; R. W. Grierson, Oshawa; A. W. Peart, Burlington; E. D. Smith, Winona; G. A. Robertson, St. Catharines; James E. Johnson, Simcoe; D. Johnson, Forest; F. Metcalf, Blythe; C. W. Gurney, Paris, and C. L. Stephens, Orillia. The officers will be elected at a meeting of the directors next January.

THE PRESIDENT'S ADDRESS

In his opening address, Mr. A. W. Peart, of Burlington, the president, called attention to the ravages of the codling moth in Ontario orchards. "There is great hope among our fruit growers," he said, "that the codling moth may be controlled. In some of the unsprayed orchards this year, the ravages were unprecedented. I saw one orchard of Baldwins where the ground was literally covered with fallen fruit, all the apples being wormy. The weather seemed to be particularly favorable to the pest." During the past season, the association issued hundreds of circulars embodying the

experiences of two or three of the most successful orchardists in the province. Extracts from one of these circulars were published in the March issue of THE CANADIAN HORTICULTURIST. The circulars were sent to apple growers in all parts of the province and resulted in the methods advocated being adopted in a number of cases, the results being satisfactory.

Mr. Peart referred also to the series of fruit institutes that were conducted by the association last winter and spring. It was a departure along the line of practical education. The programs were carefully prepared, embracing subjects that had to do with all branches of fruit culture. The results were satisfactory to the fruit interests of the province. It is expected that similar meetings will be held during the coming winter. All farmers and fruit growers should make it a point to attend the ones that will be held nearest to their places of abode.

Reference was made, also, to the efforts being put forth by the Ontario Department of Agriculture to place Ontario fruit before the public in this country and in Great Britain. Large exhibits were made at Winnipeg, at the Canadian National, Toronto, at the Franco-British Exhibition at London, England, and recently a large consignment of fruit was sent to the exhibition of the Royal Horticultural Society in London. At the conclusion of the latter exhibition, the fruit will be sent to various points in Great Britain so as to demonstrate the capabilities of Ontario in the production of high grade fruit. The greatest exhibition of fruit from an Ontario viewpoint was the one held in Toronto at the same time as the fruit convention. It was a splendid success.

"The weather conditions of the past season," said Mr. Peart, "were unfavorable to the development of fungous diseases but the Greening apple was a noted exception. In some districts, this variety is classed as a winter apple but with me at Burlington, it is a fall apple, being picked immediately after Ribston. After picking, I noted a greyish fungus adjacent to the stem of the Greening, which is an unusual place for it to appear. I packed some in boxes and some in barrels and shipped them to the Old Country. The result was very unsatisfactory, the fungus developing so badly as to almost wipe out the profit. I have been informed that this fungus is a secondary development from the black spot or scab. Whatever it may be, it appears to be a new visitor in the orchard. It is remarkable that the Greening was the only apple affected."

In regard to crops and prices, Mr. Peart pointed out that the apple crop of the past season was light so far as winter varieties were concerned. Pears, plums and peaches were from an average to a good crop. The gross tonnage of grapes was heavy, although the yield per acre was lighter than usual. Small fruits were a fair crop. Prices did not rule as high as last year. On the whole, however, fruit growers have done fairly well. Trade depressions account to some extent for the low prices. It behooves fruit growers to appreciate this depression and to reduce our expenditures to a minimum consistent with economical management.

"In regard to the problems that confront us," remarked Mr. Peart, "I am one of those who believe that fruit growing is still in an experimental stage. The conclusions we reach to-day are subject to revision in the near future as our experience and knowledge increases. One of the problems

that confront us is the question of the soil naturally best adapted to any good fruit. Another problem arises in connection with soil variations in regard to different varieties of the same fruit. The fringe of this question is scarcely touched. Take pears for example. The Kieffer pear produces best on a sandy soil but my experience with other varieties goes to show that a clay soil is the natural home of the pear. There are problems connected with the care and management of orchards. Others have to do with spraying. The problem of co-operation is important, also the problems of sorting, grading, packing and marketing. Altogether, the fruit grower should feel hopeful for the future.

"The ideals of this association," concluded Mr. Peart, "should be based upon integrity, intelligence and industry—three factors, moral, mental and physical. Upon these three principals rests the future success of the fruit growing industry of Ontario."

CONTROL OF NURSERY STOCK

The legislative control of nursery stock has been under consideration for some time by this association. There is a feeling that nurserymen should be compelled to guarantee stock true to name. During the past year, a committee appointed by the association to investigate the question went into the matter thoroughly, meeting on one occasion in conference with a committee of nurserymen. Its report presented at the convention by Mr. Robt. Thompson, of St. Catharines, took the form of a draft bill which will be published in next issue.

STRAWBERRY CULTURE

A practical paper on "The Handling of the Strawberry Plantation," was read by Mr. S. H. Rittenhouse of Jordan Harbor. It is published on page 259 of this issue. An interesting discussion followed. Mr. A. E. Sherrington of Walkerton said that he prefers a good clover sod for strawberries. He pointed out that the selection of plants for setting is very important. "Do not allow the rows to get too wide," said Mr. Sherrington. "I take only one crop from the plantation and then plow it down. It is cheaper to plant than to cultivate an old bed. The fruit should be picked when ripe, neither before nor after. Do not pick when the dew is on nor immediately after a rain; pick when dry. Grading the fruit can be done but it is not necessary when the fruit is well grown. Use clean packages. Local conditions have much to do with the success of strawberry culture."

"The preparation of the soil must be thorough," said Mr. W. F. W. Fisher, of Burlington, "and it must be well enriched. Select only the best plants for planting and when marketing, cater to the prevailing demand." Mr. L. A. Hamilton, of Lorne Park, pointed out that strawberries can be grown profitably between trees in young orchards. "Do not make the rows too long. The pickers will work more carefully on short rows. Start them at the end of the patch farthest from the packing shed. I take two crops from my plantation. After picking the first crop, I burn over the vines and cultivate between the rows. In dry seasons, care must be taken when burning or the crowns may be injured. I sprayed my plants this year with Bordeaux mixture and got a superior crop."

THE CO-OPERATIVE MOVEMENT

That the co-operative movement among fruit growers has been satisfactory and is progressing was pointed out in a report by Mr. Jas. E. Johnson of Simcoe. Excellent

work for the association has been done by the co-operative committee. A circular was issued, giving a full list of firms handling such supplies as spraying materials, pumps, hose, chemicals and so forth, together with wholesale prices for the same. This was gotten out with a view to lessening the cost of production to fruit growers connected with co-operative fruit associations. The committee investigated, also, various systems of bookkeeping for co-operative associations. It is hoped that some simple scheme will be adopted at an early date.

A pamphlet was issued, giving the names of co-operative shipping associations in the province and their secretaries and the probable output for 1908. This was circulated at the Winnipeg association and to various fruit dealers and other parties applying for same.

A recommendation was made to the department of agriculture that an instructor in barrel packing be appointed to visit various associations. This recommendation was adopted and Mr. Backus, of St. Catharines was appointed to look after this work. In connection with the spraying regulations carried out by the department of agriculture, the committee assisting in drafting a set of rules for this work which would be in advance of those of 1907. The grants were to be made payable on the basis both of acreage sprayed and the efficiency of the spraying.

Among the other reports read were those of the committees on "New Fruits," "Transportation" and "The Toronto Fruit Market." Some of these will be found in other columns of this issue. The others will appear later.

APPLE PACKING

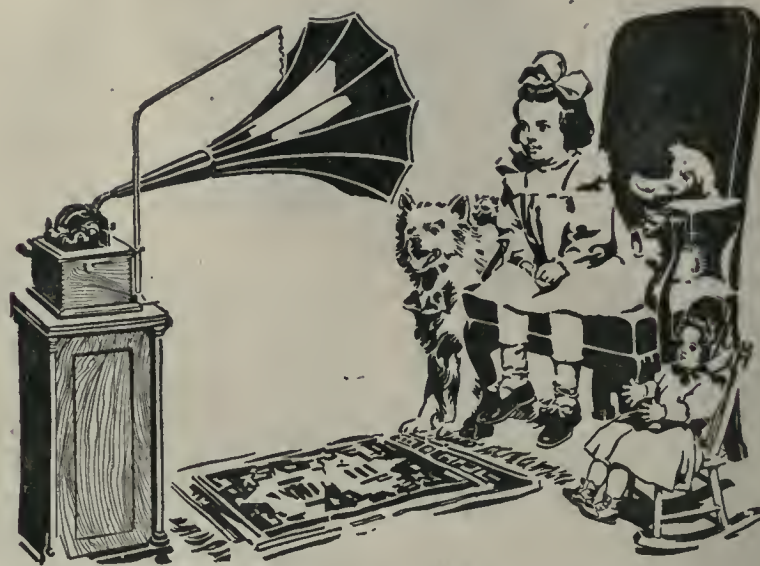
"Apple Packing and Packages" was the subject of an address by Mr. Elmer Lick, of Oshawa. He said that one of the problems of packing is to get men who are reliable and capable of doing the work. The Oshawa Co-operative Fruit Growers' Association, of which Mr. Lick is manager, is doing good work in its neighborhood in educating farmers and fruit growers in the matter of proper packing and grading. While a few years ago these operations were performed indifferently, great improvement is now noticeable. "One can pack more apples in a better way in a fruit house than in the orchard," remarked Mr. Lick, "and the cost is about the same. An essential is to have good barrels, well nailed. The heads should be of basswood. The hoops should be driven tightly. For each liner, only five nails are necessary and two of them should be clinched. The staves should be thick. When filling, place the barrel on a level place. Have the face right, even or with smaller rows around outside. Fill evenly and have the apples, as far as possible, interspersing with each other rather than directly one on top of another. This system does not bruise the fruit so much. Rack the barrel occasionally when putting in the fruit. When packing in boxes it is a good idea to place a wire around each one to strengthen it."

"Tender Fruit Packing and Packages" was discussed by Maj. H. L. Roberts, of Grimsby, and "Markets" by F. J. H. Pattison, of Winona. Both of these addresses will be reported in full in a later issue.

A number of other valuable addresses were delivered. "Prevalent Fungous Diseases of Ontario orchards," particularly fire and twig blight and peach yellows, were discussed by Mr. M. B. Waite, of the United States Department of Agriculture. A portion of this paper appears as the introductory article of this issue of THE CANADIAN HORTICULTURIST. The subjects of the other addresses are "The Apple Maggot, Blister-

Leaf Mite and Apple Tree Canker," by Prof. Wm. Lochhead, Macdonald College; "Observations on the Use of Fertilizers in German Orchards," by Prof. R. Harcourt, O. A. C., Guelph; "Results of Orchard Surveys in New York State," by Prof. Chas. S. Wilson, Cornell University; "The Ship-

ment of Early Apples and Tender Fruits to Great Britain," by J. A. Ruddick, Ottawa; and "The Western Provinces as an Outlet for Our Fruit," by J. W. Crow, O. A. C., Guelph. All of these papers will appear in subsequent issues of THE CANADIAN HORTICULTURIST.



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Vegetable Growers Convention

THAT seedsmen should be held liable for the vitality and the naming of vegetable seeds that they sell was the opinion of the members of the Ontario Vegetable Growers' Association, who assembled in convention at Toronto last month. Mr. J. Lockie Wilson, the secretary, in his report, referred to the efforts that had been made by the executive committee to have some recourse at law against seedsmen who sell seeds untrue to name and of poor germinating qualities. The question was discussed, also, by Mr. Thos. Delworth, of Weston, who referred to the Dominion Pure Seed Act, which covers clover seed, and contended that purity and vitality in vegetable seeds was even more important than similar qualifications in clover. He pointed out that the Act should be amended to cover vegetable seeds. As is well known, on every package of seeds sent out by all seedsmen of the continent, there is printed a disclaimer as to liability. Vegetable growers, therefore, are at the seedsman's mercy. Mr. Delworth suggested that seedsmen should print on each package the percentage of seeds contained therein that will germinate.

A report on the onion industry in Canada and the United States was made by Mr. A. McMeans, O. A. C., Guelph. The leading states of the Union that ship onions in car-load lots are, in order of importance, Ohio, New York, Indiana, Massachusetts, Connecticut, Wisconsin and Michigan. The total onion area of the United States is 17,813 acres and the yield, 5,571,450 bushels. The greatest onion district on the continent is the Harden district of Ohio. Referring to the industry in Canada, Mr. McMeans said

that 65 cars of onions were shipped from Scotland, Ont., last year and 35 from Leamington. Mr. McMeans expressed the opinion that onion seed could be grown successfully in Essex county.

A discussion then took place on the kinds of vegetable seeds that could be raised successfully in Ontario. It was the general opinion that while most vegetable plants will produce seed of some sort, experiments would be necessary to determine whether or not local and climatic conditions would favor the production of the best strains of seeds true to variety type. It was moved that in the opinion of the association, the Dominion Government should institute a series of experiments to determine what varieties of vegetable seeds can be grown successfully in Canada. A motion was passed, also, requesting the Ontario Department of Agriculture to conduct experiments in the growing of vegetable seeds on the experimental farms at Guelph, Jordan Harbor, Driftwood and at all other points that may be deemed advisable.

IRRIGATION

A valuable paper on "Irrigation and Its Effects on the Growth of Vegetables and Small Fruits," was presented by Mr. W. T. Macoun, of Ottawa. The various methods of irrigating were mentioned as follows: 1. By means of the furrow system. This is of much benefit to potatoes. The garden hose may be used. Movable sprinklers are used in Nova Scotia for lettuce. 2. By the use of engine power. Experiments in irrigating vegetables have been conducted by the New Jersey Experiment Station and the results were beneficial. The benefits are more marked in certain years. Mr. Row-

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some of Burlington irrigated celery this year with excellent results. Irrigation is of advantage, also, to small fruits. Generally speaking, however, very little work in the irrigation of small fruits and vegetables has been attempted in Canada and the Eastern States. Mr. Weaver, of Chatham, stated that he had experimented successfully with irrigating potatoes and sugar beets, the potatoes being most benefitted.

"The Value of Commercial Fertilizers to the Vegetable and Small Fruit Growers" was discussed by Mr. A. McKenney, of Essex, the representative in that district of the Department of Agriculture. He said that growers must make individual experiments to have the best results with fertilizers. Some years better returns are had than in others. In 1907, results were favorable. This year, owing to drouth, the influence of fertilizers on crops was not marked.

THE TOMATO INDUSTRY

Some observations on the tomato industry in Ontario were mentioned by Mr. A. G. Turney, of Guelph. He pointed out that most tomatoes in the province were grown for canning purposes. The acreage for this purpose has increased from 800 in 1891 to 8,000 this year. There are 50 factories, the majority of which have been erected in the past five years. Most tomato seed comes from the United States. One ounce will supply plants for one acre. There is not much seed selection practised. It takes about 175 days from planting to ripening of the fruit. The average yield in Ontario is 175 bushels an acre. Four hundred bushels an acre would give a profit of from \$50 to \$60. For fertilizing the soil, about 20 tons of manure are used per acre. Mr. W. C. McCalla of St. Catharines calculated that a crop of 450 bushels of tomatoes an acre would cost from \$65 to \$75. The cost

of growing depends, however, upon local conditions.

A paper on "Combatting Insect and Fungous Foes of Vegetables" was read by Mr. T. D. Jarvis, of Guelph. This will be published in a latter issue.

The president, Mr. R. H. Lewis, of Hamilton recommended a reduction in the membership fee to the association from \$1 to 50 cents. He pointed out that this would result in a large increase in membership. The recommendation was adopted. Among the resolutions passed was an expression of sympathy addressed to the widow of the late Dr. Jas. Fletcher, Ottawa. It was resolved, also, that the variety tests conducted last year by the members of the association should be continued and on a larger scale.

At one of the sessions, the Hon. Jas. S. Duff, Minister of Agriculture, was present and delivered a short address. He said that the association is one of the most important in the province. He advised the executive committee to distribute to all growers in Ontario, whether affiliated or not, information respecting the work of the organization, experiments that have been conducted, legislation that has been secured, and so forth. The minister promised the assistance of his department as far as practicable and as far as funds will allow. Mr. Seeley, of Hamilton, suggested that the association combine with the Ontario Fruit Growers' Association to bring influence to bear at Ottawa in securing legislation that would be in the interests of their respective industries in the province.

Ontario won the highest award (gold medal) for a general display of fruit at the Royal Horticultural Show in London, England, last month. All the British colonies entered the competition.

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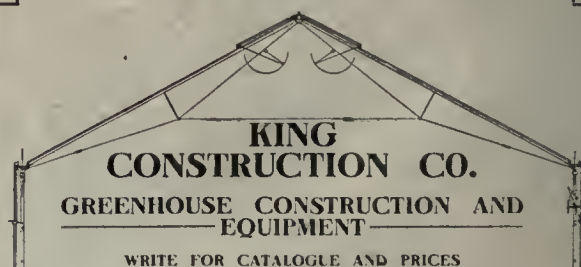
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NOTES FROM THE PROVINCES

Kootenay Valley, B. C.

Edgar M. Dynes

November was marked by the re-organization of the Kootenay Fruit Growers' Association. The shipping returns for the present season have not been very satisfactory and as a consequence the old management resigned. New methods will be adopted in future.

Fruit growers generally are agitating for an experimental fruit farm. Such a station would be of great assistance to the growers of the district in determining what varieties are the most valuable from a commercial standpoint.

Representatives of nursery firms report a record business. One home nursery reports being sold out of some varieties already, although they had a heavy stock. There has not been a large amount of fall planting but the indications are that next spring the Kootenay will again break all previous records in the number of trees planted.

The sale of government lands at Creston was most successful from every standpoint. The prices ruling were high, reaching \$300 an acre in one instance. Several blocks turned over at \$150 while, in every instance, the price obtained was 300 per cent. above the upset price. A most striking feature about the sale was the fact that two-thirds of the sales were made to local Creston men who have been on the ground for

some time and who know just what the land can be made to produce. Creston strawberry growers have been particularly successful, as averages of as high as \$1,000 an acre have been obtained.

The Doukoboors are making substantial progress on their colony at Waterloo and will have a sawmill running very soon. During the winter they will cut lumber for use in building houses and in the spring will move their families from Saskatchewan. They state that they are well satisfied with Kootenay and that other colonies will be brought out in the future.

Montreal

E. H. Wartman, Dominion Fruit Inspector

This sixteenth day of November we find cars of apples arriving from Ontario free from frost,—unusual so late in season. In fact, I have not seen a frozen apple in the hundreds of barrels I have examined so far. This must be a pleasant thought to the shippers.

The apples going forward in standard boxes put up by the co-operative packing associations are very satisfactory. The breakage in barrels this season has been very small, due to the strong eight-hoop barrels which are on the increase.

Wholesalers have made sales of strictly No. 1 Spys at \$5, which leaves a good mar-

gin. Of course, the Spy is the great local apple of our Dominion in its season.

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Nova Scotia

Eunice Watts

This month ends one of the most bountiful years ever witnessed in Nova Scotia. The apple crop has exceeded expectations, and prices have been fairly good on the whole with prospects of a rise. The cranberry yields have never been so large, and the weather has been most favorable for harvesting them, so that the berries were gathered in fine shape and sold for equally fine prices.

In the apple belt under the North Mountain most orchardists have sold all their apples, while those who are holding them expect the prices to rise. Dealers are offering \$1.75 a barrel for ones and twos, for such apples as Fallwaters, but returns from England are much more satisfactory, as much as \$3.50 for Alexanders being received.

The annual exhibit for the Royal Horticultural Society's Show, in London, England, was sent from Nova Scotia in November. It consisted of 335 boxes, 100 glass jars and 11 barrels of plate fruit.

NOTES FROM INSPECTOR VROOM

The fruit crop was much larger than was expected in the early autumn, fully 100,000 barrels more. The fruit grew comparatively clean, thus making it easy for packers to be honest. Some men in Nova Scotia must have things very nice before they can be honest when they pack a barrel of apples. There are four co-operative packing companies in the Annapolis valley, and they are doing good work and getting fine prices for their fruit. Very few No. 3's are being shipped. These find their way into the evaporators and cider mills. The price for No. 1's started at \$1.25 a barrel for Graven-

steins, packed ready for shipment, and \$1.00 for No. 2's. To-day, the best packed fruit sells readily for from \$2.00 to \$2.50.

Contrary to the usual custom, large shipments of Nova Scotia apples are going to Liverpool and Glasgow, and larger quantities than usual are being sent to Bermuda, Havana and other West India islands. Kings and Ben Davis are the principal varieties sent to the West Indies. About 60,000 barrels more have been shipped from Halifax to all points this year to date than last. Several thousand packages, including barrels, half-barrels and boxes, have been shipped to South Africa.

The cranberry crop was good and the continued fine weather in September and early October enabled the growers to gather them without injury by frost. The price is \$5.50 a barrel. The barrels hold 80 quarts. The cranberry yield is about 8,000 barrels.

Read the special Christmas offer on inside front cover of this issue.

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Conducted by S. Short, Ottawa

December is the most important month in many respects to the poultry-keeper. If eggs are to be expected in January and throughout the winter, regular and intelligent care must be given to the fowl from now on and, in fact, those who began a month ago to give their hens proper conditions for laying, are most likely to get the best egg harvest. Proper conditions in-

clude the whole situation, which may be divided into three parts; viz., the poultry house, the fowl, and feeding.

The house should be in thorough order in every respect. The windows should be sound and scrupulously clean. This is very necessary. The days are now very short. At the earliest, the fowl cannot see to eat before seven a.m. and after four p.m. at the latest. This means a period of fifteen hours between the last meal of the day and the first of the next, which shows the need of all the light that can possibly be given. In cities and towns this long gap between supper and breakfast is shortened by giving a fourth meal between eight and nine o'clock at night by electric light and, in some cases, the result has been very encouraging and successful. This can be done by lamplight but it takes from half to three-quarters of an hour each night, which may not be considered worth while unless large flocks are kept.

The fowls should be healthy, in good condition, and the pullets mature. There is a wide difference of opinion about the number of layers that should be kept in each flock or pen. Personally, I think twenty-five or thirty is plenty for each pen. One expert says: "When you think you have room for twenty layers only keep ten." This is good advice. If you have to lessen the number of fowl kept, begin by removing all the spare males, young and old, keeping only those needed for breeding next spring. Next, remove all hens over two years of age, except if the breed kept is Leghorn or any of the Mediterranean class, when they may be kept until three years of age. After the old hens, remove the very young pullets. This should leave only serviceable birds that, with proper food, should return eggs in profitable quantities.

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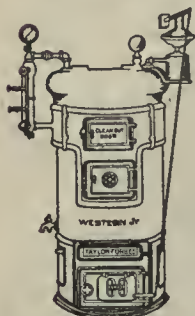
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food. Give the soft food whenever most convenient. Many breeders give it the first meal of the day, others at noon and others again, at night. There are arguments in favor of each method, so that, as far as now known, it is best to let convenience decide the point. Wheat and oats make a good grain ration—half of each. To this may be added a small quantity of whole corn, say one part to ten of wheat and oats. If white birds are kept and are used for exhibition do not add corn—it makes the plumage creamy. The soft feed may be made up of five parts bran, four parts whole grain provender and one part corn-meal, but omit the corn-meal if white birds are kept. This covers the main feeding. In addition, there should be in each pen, hoppers or boxes containing grit and oyster-shell. Cabbages, mangels, beets, or other green food should be fed in reasonable quantities.

For stimulating the egg supply green bone may be given three times a week. Feed this very lightly. If it is not convenient to feed green bone, use beef scraps or meat-meal. This may be mixed in the soft food, say about a tablespoonful to each fifteen fowl. It is far better to feed too little of either green bone or meat-meal than too much.

Mention should have been made at the beginning of this article that the floor should be covered with litter of any kind

such as chaff, forest leaves, or other light, dry material to the depth of three or four inches, into which all grain should be thrown to give the layers necessary exercise.

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